

THE
DOCTRINE
OF
GOLD and SILVER
Computations;

In which is included,

That of the PAR of Money :
The Proportion in Value between
GOLD and SILVER;

And the

Valuation of GOLD, SILVER, and
PARTING ASSAYS :

With useful

TABLES and COPPER-PLATES.

By THOMAS SNELLING.

L O N D O N :

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Who buys and sells all Sorts of Coins and Medals.



T A B L E

O F

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2	Fine wt. and fineness	Gross weight
3	Wt. of alloy and fineness	Gross weight
4	Gross wt. and fine wt.	Fineness or report
5	Gross wt. and alloy wt.	Fineness or report
6	Gross wt. and fineness	Standard weight
7	Gross wt. and standard wt.	Fineness or report
8	Fineness and standard wt.	Gross weight
9	Wt. and fineness of one ingot, and wt. of another	Standard wt. of the other
10	Wt. of two ingots, and fine- ness of one	Fineness of the other
11	Report of two ingots which standard each other, and wt. of one	Weight of the o- ther
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Doctrine of proportion between gold and
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P R E F A C E.

THE two principal objects attended to in the following work, is first the mixing of a fine metal with a base one, in different proportions; and secondly, the value of the mass according to the quantity of fine metal contained in it.

In regard to the first, it appears from the method of notation used in this kingdom, to distinguish the different qualities of silver, that there may be 480 sorts of it, or from that which has but an halfpennyweight, in a lb. weight, and still increasing by an halfpenny weight until the whole lb. is fine silver; and by the notation used for gold there may be 384 sorts, each differing by one quarter carat grain, or from that which has but one quarter of a carat grain, to that which is quite fine; and when these two metals are mixed with copper, and the quantity of each is to be taken notice of, as in parting, there may be 460800 different manners in which they may be mixed, and reports made of

A 2

them

The P R E F A C E.

them accordingly, which shews how copious this part of the subject is.

That particular mixture which has 37 parts fine metal, and 3 parts base, is what our legislature has fixed upon, out of which both money and plate is to be made in silver; and that mixture which has 33 parts fine, and 3 parts base, to be that from which gold coin and work is to be made; these mixtures are called standard silver and standard gold, and certainly are so termed with great propriety, as they have been so steadily adhered to for 500 or 600 years, especially the former, and the latter about half that time, the former is likewise generally known by the name of sterling, which it has received from our penniy or sterling being always made of it.

And this is the reason that enquiries are not made, what quantity of fine gold or fine silver is contained in any mixture, which seems to be the most natural enquiry, but how much standard they hold.

And on this account it is that tables have been calculated of the quantities of standard contained in any determinate weight

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weight of any other mixture; these sort of tables were first published An. 1651, by Mr. Reynolds, assay master at the Mint in the Tower, and afterwards with corrections and additions again in 1677, at the end of a book, entitled, *The Touchstone of Gold and Silver Wares*; the tables we have added in our work are in substance the same as those, but we have given the weights in ounces only, instead of pounds and ounces, and we have divided the grain only into 8th parts, instead of mites and parts of a mite as he has done.

Our other tables for standarding gold or silver that is worse, with gold or silver that is better, shewing by inspection how much of the latter is to be added to one ounce of the former to standard it, is entirely new, and we do not doubt but it will be found very useful.

The second of the two principal objects in this work is the value of the mixture, and this is always ruled by that of one ounce of standard both in silver and gold, which method is different from that of most foreign nations, where the value of the mark of 8 ounces of fine gold or fine silver is that, from
which

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which all mixtures are calculated, and receive their price according to the assay, the manner of computing which we have given at large, as also a very compendious one for common use, by means of little tables for gold, silver and *parting* assays, which last we do not remember has been hitherto treated on by any writer.

As to the particular application of the doctrine of value to ascertain the par of money, we think it is considered in a different light from most of our writers, as they only tell us what it is, without giving the requisite data of weight and fineness, and therefore we cannot either find it ourselves, or know whether what they have given us is true or false, and the same circumstance attends the discovery of the proportion between gold and silver; finally, as the present work is the first, as far as we can learn, that has been wrote *professedly* upon the subject, we flatter ourselves it will be found the more agreeable, however we submit the whole as it is, to the judgment and candour of those whose inclination or employment may lead them to consider this very curious and useful species of computation.

TABLE

P R Æ C O G N I T A.

I. **B**Y the word SILVER we understand, not only the metal so called, pure and unmixed, but also when in a mass with copper; and if but one half, two thirds, or any other proportional part of it be silver, yet the whole bears that name.

II. The same is to be understood of GOLD, when by itself, or in a mass with silver and copper together, or with either of them alone.

III. None but the pure silver and pure gold are of any value, and therefore in the masses, wherein but $\frac{1}{2}$ or $\frac{2}{3}$ are fine metal, one ounce or one pound of them, are of no more value than one half, or two thirds of an ounce, or a pound of fine silver or fine gold.

IV. The copper that is mixt with the silver, as also the copper and silver that is mixt with the gold, is called the allay or alloy.

V. In order to find the number of parts that are fine, and the number of them that are alloy, a small quantity of any mass is generally taken, which is called an assay piece, or tryal piece; for from this the assayer or assay master (as the Person is called who tries it) determines that of the

B

whole

whole mass, and the result of this operation is called the assaymaster's REPORT.

VI. Every piece of silver, whether bullion or money, let its weight be what it will, is supposed to consist of 12 parts (*a*) called ounces, and each of them, of twenty parts called pennyweights, or of 240 pennyweights; and the half of this pennyweight, or the 480th part, is the smallest made use of in silver.

VII. In gold every entire piece as above said, is supposed to consist of 24 parts called carats (*b*) each of which is divided into 4 grains, and each grain into 4 quarters; that is, 96 carat grains, and 384 quarter carat grains, which is the smallest part noted in gold.

VIII. These ounces, pennyweights, and grains, are thus marked in the report i , ij , iii , iiii , v , vj , vij , viii , ix , x , xi , xij , xiii , xiiii , xv , xvi , xvij , xviii , xix , xx , xxi , xxij , xxiii , and the half penny weight is marked ss for obolus.

(*a*) The number of parts into which the supreme degree of fineness for silver is divided in England, as also the names given to them, are borrowed from, and agree with, the weights made use of in weighing these metals; it is the same likewise in France, Spain, and many other places, with regard to their denier being divided into 24 grains, but not in the mark being 12 deniers; however, in Germany their expressions for fineness, and denominations of weight are 16 lodig each 18 grains, or 288 grains make one mark fine, and the same number of lodigs and grains are in their mark weight, so likewise in China their division of fineness into 100 touches, bear a relation to that of the tale into 100 candareens.

(*b*) The carat in most places is a nominal weight only, not borrowed from any real weight, but considered as the 24th part of a pound, an ounce, &c. They divide it into $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$, $\frac{1}{16}$, and $\frac{1}{32}$ in France and Spain, which last agrees with our $\frac{1}{2}$ quarter carat grain; in Germany they divide it into 12 grains, and therefore their fine gold and fine silver consists of the same number of grains, viz. 288. But in Venice it is also a real weight, as well as an expression of fineness both for gold and silver, the mark weight consisting of 1152 carats, and their supreme degree of fineness the same.

IX. In England eleven ounces two pennyweights of fine silver, and eighteen pennyweights of copper, make one pound weight of silver of the fineness established by law, and is called STANDARD silver; that is, silver of 11 $\frac{1}{2}$ oz. or 11 oz. 2 dwt. or 222 dwt. fine.

X. And the fineness of the gold established by law, or that called STANDARD gold, consists of 22 carats of fine gold, and 2 carats of alloy, which is equivalent in its fineness to 11 ounces of fine, and 2 ounces of alloy in silver.

XI. The assay master does not report the absolute fineness, or quantity of fine silver or fine gold, but only the relative quantity or fineness; that is, how much it is more or less than standard, as if it was silver of 10 oz. fine, he puts down Wo. $\overset{oz}{05} \overset{dwt}{11}$

or if 11 oz. 8dwt. he puts down Br. vi. and in gold of 20 carats fine he puts down Wo. $\overset{car.}{11}$

and if it is 23 car. 3 gr. $\frac{1}{4}$ fine, he puts Br. $\overset{car}{23} \overset{gr}{11} \overset{lb}{36}$.

XII. The quantity of betterness or worseness in any ingot, being added to, or subtracted from the weight of it, gives the quantity of standard contained in it.

XIII. That mass wherein there is a mixture of gold, and the quantity of that as well as the silver, is to be reported; such an assay is called a PARTING ASSAY, in which the silver is to be reported as usual, how much better or worse it is than standard; but the gold contained in it is reported by its quantity in ounces, as if an ingot has 9 oz. of fine silver and 1 $\frac{1}{2}$ oz. of fine gold, it is reported W. $\overset{oz}{05} \overset{dwt}{11}$

fine gold $\overset{oz}{1} \overset{dwt}{11}$.

XIV. That part of this work which has for its object the relation, which the gross weight, fine weight, and standard weight contained in two or more ingots, have to each other, we call the doctrine of quantity.

XV. In which enquiries, there are always three terms given to find a fourth ; that is, the weight and fineness of one ingot, and either the weight of another ingot to ascertain its fineness, or the fineness to ascertain its weight ; which are in reciprocal proportion to each other, and the product of the weight of each ingot multiplied into its fineness, are equal.*

XVI. And when several ingots are melted together, differing from each other both in weight and in fineness ; the sum of the products of the weight and fineness of each ingot being added together, will be equal to the product of the weight and fineness of the mass.

XVII. The same thing occurs likewise with ingots of parting, wherein the several products of the gross weight multiplied into the quantity of gold for the gold, and that of the silver and alloy into the fine silver for the silver ; being added together, will be equal to the gross weight of the mass multiplied into its fine gold, and the silver and alloy into its fine silver.

XVIII. That part of this work which besides weight and fineness, has also value under its consideration, we call the doctrine of value.

XIX. In those cases where the weight of two ingots are the same, but of different finenesses, or the fineness the same but of different weights ; there are also three terms given to find a fourth, and are in direct proportion, the value increasing or decreasing.

* In the two ingots A and B, if $a =$ the wt. and $b =$ the fineness of A ; $c =$ the wt. and $d =$ the fineness of B. Then as $c : a :: b : d \therefore ab = cd$.

decreasing as the weight or fineness, and the product of the weight of each ingot into the value of the other are equal. §

XX. But in those cases where the weight and fineness of two ingots are both different, then the value is directly as the product of the weight and fineness of one of them, to the product of the weight and fineness of the other. ‡

XXI. And there are always five terms given to find a sixth; that is, the value of an ingot, or piece of the weight of one ounce of standard, with its price per oz. and either the weight and fineness of another ingot, to find its value, or the weight and value, to ascertain its fineness, or the fineness and value to ascertain its weight; and all the cases relating to the par, and proportion of money, are thus circumstanced.

§ Let x = the value of A , and z = that of B , then as $c : x :: a : z$ and as $b : x : d : z$, that is $ax = cz$, and $dx = bz$.

‡ As $ab : x :: cd : z \therefore abz = cdx$.

The

The Doctrine of Quantity.

CASE I.

Given the gross weight, and the fineness, or report, to find the quantity of fine metal and alloy. Præcog. XV.

Example 1. An ingot of silver which weighs 256 oz. is reported Br. ^{vi}/_{vi} what is the quantity of fine silver and alloy in it?

dwt.
To 222 the fine parts in standard
Add 6 those of the report
228 fine parts in the ingot

dwt. oz. dwt. oz. dwt.
Then 240 : 256 :: 228 : 243 4
228

2048

512

oz. dwt.

512

256 - 0 gross wt.

24|0)5836|8 (243 - 4 fine silver

103

12 16 alloy

76

Remains 48

20

24|0)96|0 (4 dwt.

The

(7)

The alloy is found directly as follows :

From ^{dwt.} 240 total number of fine parts
Take 228 those of the ingot
Remains 12

Then as ^{dwt. oz. dwt.} 240 : 256 :: 12 :

$$\begin{array}{r} 12 \\ 240 \overline{) 30712} (12 \text{ oz. 16 dwt. alloy} \\ 67 \\ 192 \\ 20 \\ 24 \overline{) 384} (16 \text{ dwt.} \\ 144 \end{array}$$

Example 2. An ingot of gold weighing 235 oz. 16 dwt. 18 gr. reported Wo. ^{cr. gr.} $\frac{1}{2}$ $\frac{1}{2}$ how much fine gold is contained in it?

From ^{car. cr. gr.} 22 or 88 fine parts in standard
Take $1\frac{1}{2}$ or 6 those in the report
Remains 82 fineness of the ingot

^{car. gr. oz. dwt. gr. ca. gr. oz. dwt. gr.}
As 96 : 235 16 18 :: 82 : 201 - 8 - 21

$$\begin{array}{r} 20 \\ 4716 \\ 24 \\ 18882 \\ 9432 \\ 113202 \\ 82 \\ 226404 \\ 905616 \end{array}$$

$$\begin{array}{r} 24) \\ 96 \overline{) 9282564} (96693 (2 \overline{) 402} 8 \\ 642 \\ 665 \\ 896 \\ 324 \\ 36 \end{array}$$

201 8 21 fine gold
21 grains

CASE II.

C A S E II.

Given the fine weight, and the report, required the gross weight. — Præcog. XV.

Example 3. — An ingot contains 387 oz. 17 dwt. of fine silver, and is reported Wo. $\frac{7}{16}$ $\frac{11}{16}$, what is the gross weight of it?

dwt. $\frac{1}{2}$ dwt.

From 222 or 444 fine parts in standard

Take $17\frac{1}{2}$ or 35 those of the report

409 those in the ingot

$\frac{1}{2}$ dwt. oz.

dwt. $\frac{1}{2}$ dwt.

As 409 : 387 — 17 :: 480

20

7757

480

620560

31028

20)

409)3723360(

910|3

423

455-3 gross wt.

1460

remains 233

Example

Example 4. An ingot of gold reported Br.
^{cr.} ^{gr.}
^{i.} ^{j.} which has 127 oz. 15 dwt. 3 gr. of fine
 gold, what is the gross weight of it?

car. gr.
 To 88 fine parts in standard
 Add 5 those in the report
 93 those in the ingot

car. gr. oz. dwt. gr. cr. gr. oz. dwt. gr.
 As 93 : 127 - 15 - 3 :: 96 : 131 - 17 - 18

20

2555

24

10223

5110

61323

96

367938

551907 24) gr. 210 dwt.

93) 5887008(63301(26317

307

153

131-17-13 gross wt.

280

90

108

181

15

13 gr.

C

CASE

C A S E III.

Given the fineness, or the report, and the weight of alloy to find the gross weight. *Præcog. XV*

Example 5. An ingot of silver is reported Wo. $\frac{93}{100}$ and contains 27 oz. 17 dwt. of alloy, what is the weight of the ingot.

dwt.
To 18 the alloy in standand
Add 26 that of the report

44

dwt. oz. dwt. dwt. oz. dwt.
As 44 : 27 17 :: 240 : 151 18
20

557

240

2228

1114

44)133680 (303|8
168 151 18 gross wt.
360

remains 8

Example 6. An ingot of gold reported Br. $\frac{747}{1000}$ and which has 21 oz. 2 dwt. 18 gr. of alloy, what is the gross weight.

From

(11)

car. gr.
From 8 alloy in standard
Take 3 that of the report

5

car. gr. oz. dwt. gr. car. gr. oz. dwt. gr.
Then as 5 : 21 2 18 :: 96 : 381 16 19

8

169 2 0
12

5)2029 4 0

405 16 19 the grofs wt.

We have here multiplied the weight as it ftands.
without reducing it into grains.

C A S E IV.

Given the grofs weight, and the fine weight, re-
quired the report or fineness. *Præcog. XV.*

Example 7. An ingot of filver weighing 722 oz.
10 dwt. and containing 620 oz. 3 dwt. of fine
filver, what is the fineness of it?

oz. dwt. dwt. oz. dwt. dwt.
As 722 10 : 240 :: 620 3 : 206

20

20

14450

12403

240

496120

24806

1445|0) 297672|0(206 fine or Wo. 206
8672

remains 20 parts of a dwt.

C 2

Example

Example 8. The gross weight of an ingot of gold is 82 oz. 15 dwt. 6 gr. of which 77 oz. 11 dwt. 20 gr. is fine gold, what is the fineness of it?

oz. dwt. gr. car. gr.	oz. dwt. gr. car. gr.
As 82 15 6 : 96 ::	77 11 20 : 90
20	20
1655	1551
24	24
6626	6224
3310	3102
39726	37244
	96
	223464
	335196
	ca. gr. car. gr.
39726)	3575424 (90 or Br. ij.
remains 84	88 fine pt. in stan.
	2 report

C A S E V.

Given the gross weight, and the weight of the alloy, required the report or fineness. *Prætog. XV.*

Example 9. An ingot of silver which weighs 288 oz. 11 dwt. of which 39 oz. 14 dwt. is alloy, what is the fineness of the ingot?

As

(13)

oz. dwt. oz. dwt. dwt.
As 288 11 : 240 :: 39 14 : 33

20

20

5771

794

240

31760

1588

5771)190560(33 or Wo. ^{5/16} 20.
17430 18 alloy in stand.

remains 117 15 report

Example 10. An ingot of gold which weighs 48 oz. 17 dwt. 20 gr. has 1 oz. 15 dwt. 16 gr. of alloy, what is the fineness?

oz. dwt. gr. oz. dwt. gr.
As 48 17 20 : 96 :: 1 15 16

20

20

977

35

24

24

3928

156

1954

70

23468

856

96

5136

7704

23468)82176(cr gr. car gr.
3 2 or Br. j. ij.
11772 2 0 alloy in stand.

4

1 2 report

22962)47088(2

1164

CASE

C A S E VI.

Given the gross weight and the fineness or report, required the weight of standard. *Præcog. XV.*

Example 11. A silver ingot weighs 215 oz. 12 dwt. and is Br. $\frac{20}{100}$ how much standard does it contain?

	dwt.	oz.	dwt.	dwt.	oz.	dwt.
As	222	:	215	12	::	232 $\frac{1}{2}$: 225 16 feré
			20			
	dwt.					
To	222		4312			
Add	10 $\frac{1}{2}$		232 $\frac{1}{2}$			
	<u>232 $\frac{1}{2}$</u>		8624			
			12936			
			8624			
			2156			
			<u>222</u>			
	222)	1002540	(451 5			
		1145	225 15 $\frac{3}{4}$		stand.	
		354				
		<u>1320</u>				
remains		210				

Example 12. An ingot of gold weighing 145 oz. 4 dwt. 12 gr. is reported Wo. $\frac{11}{100}$ $\frac{11}{100}$ how much standard is there in it?

As

(15)

ca. gr. oz. dwt. gr. cr. gr.
As 88 : 145 4 12 :: 81
20

car.	ca. gr.	
From 22	or 88	2904
Take $1\frac{3}{4}$	or 7	24
20 $\frac{1}{4}$	or 81	11628
		5808
		69708
		81
		69708
		557664
88)	5646348	($\overset{24}{64}$ 163($\overset{20}{267}$ 13
	366	161 133 13 11 stand.
	143	176
	554	83
	268	
		11 grains
	4	

The work of this question will be much shorter by multiplying the denominations as they stand, without reducing them into grains.

oz. dwt. gr.	oz. dwt. gr.
145 4 12	145 4 12
9	20 $\frac{1}{4}$
1307 0 12	2904 10 0
9	36 6 3
8)11763 4 12	2)2940 16 3
11)1470 8 1 $\frac{1}{2}$	11)1470 8 1 $\frac{1}{2}$
133 13 11 stan.	133 13 11

But

But the best method to resolve these questions, is by finding the betterness, or worseness, according to the report, and either adding it to, or subtracting it from the gross weight. Thus the two last examples will be answered as follows :

dwt.	oz.	dwt.	dwt.	ca. gr.	oz.	dwt.	gr.			
As 222	:	215	12	::	10 $\frac{1}{2}$	88	:	145	4	12
		20								7
		43	12			8)	10	16	11	12
		10 $\frac{1}{2}$				11)	12	7	1	10 $\frac{1}{2}$
		43	120			take	11	11	1	
		21	56			from	14	5	4	12
		222)	45276	(20 3			13	3	15	11
			876							
				10 3. to						
			210	215 12 add						
			225	15 stand.						

This is the most useful Case in the whole doctrine, and that by which all the tables for standarding are calculated; and as those of Mr. Reynolds's are the best known, we shall shew now in what manner they have been form'd, to understand which, it should be premised, that the troy grain is divided into 20 mites, and the mite into 37 parts.

Example

Example 13. How much standard is contained in one pennyweight of silver Wo. $\frac{05}{21}$ $\frac{100}{1}$ of that is $22\frac{1}{2}$ dwt. or 443 half pennyweights worse.

$\frac{1}{2}$ dwt.

From 444 in standard

Take 443 in the report

1

$\frac{1}{2}$ dwt. dwt. $\frac{1}{2}$ dwt. dwt. gr. m. pt.

Then 444 : 1 :: 1 : $\frac{1}{444}$ th = 0 1 3 in 1 dt.

24

20

24

stan. 1 1 23 in 1 oz.

20 mites in 1 dwt.

12

444)480(1 mite stan. 12 19 17 in 1 lb.

36

37 parts in 1 mite

252

108

444)1332(3 parts

The standard in 1 dwt. being thus found, by addition we have all those from thence to 1 oz. to 1 lb. and so on to 500 lb.

These operations being repeated for each $\frac{1}{2}$ dwt. will form Mr. Reynolds's silver tables.

D

Example

C A S E VII.

Given the gross weight and the standard weight, required the report or fineness. *Præcog.* XV.

Example 15. A silver ingot which weighs 176 oz. 12 dwt. has 183 oz. 18 dwt. of standard, what is the fineness?

oz.	dwt.	dwt.	oz.	dwt.	dwt.
As 176	12	: 222	::	183	18 : 230 $\frac{1}{2}$
	20			20	
	3542			3678	
				222	
				7356	
				7356	
				7356	
				dwt.	
				3542)816516	(230 $\frac{1}{2}$ or Br. viij $\frac{1}{2}$
				10811	222 stan.
				1856	

8 $\frac{1}{2}$ report

The remainder if less than $\frac{1}{2}$, is not put in the quotient, and if more only the half is taken notice of. *Præcog.* VI.

Example 16. An ingot of gold weighing 110 oz. 5 dwt 13 gr. has no more than 95 oz. 13 dwt. 17 gr. of standard, how fine is the ingot?

oz.	dwt.	gr.	car.	oz.	dwt.	gr.	ca.	gr.
As	110	5	13	: 24 ::	95	13	17	: 20 @ $\frac{3}{4}$
	20				20			
	<u>2205</u>				<u>1913</u>			
	24				24			
	<u>8833</u>				<u>45929</u>			
	4410				24	cr. gr.		
	<u>52933</u>				<u>52933</u>		22 0 fl an	car gr
					1102296	(20 3 $\frac{1}{4}$ Wo. j		$\frac{3}{4}$
					<u>43636</u>		10 $\frac{3}{4}$ report	
					4			
					<u>52933</u>		174544(3	car. grains
					<u>15745</u>			
					4			
					<u>52933</u>		62980(1	quarter
					<u>10047</u>			

C A S E VIII.

Given the fineness, and the standard weight, required the gross weight. *Præcog.* XV.

Example 16. An ingot of silver which is reported Wo. $\frac{93}{100}$ contains 345 oz. 2 dwt. of standard, what is the gross weight?

Then

(21)

dwt. oz. dwt. dwt.
As 195 : 345 2 :: 222
20

dwt.	
222	6902
27	222
<u>195</u>	<u>13804</u>
	13804
	13804
	<u>29</u>
195) 1532244	(78517
	1672 392 17 15 gross wt.
	1124
	1494
	<u>129</u>
	24

195) 3096 (15 grains

Example XVII. An ingot of gold has in it 77 oz. 13 dwt. 18 gr. of standard, and is reported Br. ^{car gr} _{1 1} what does it weigh?

cr. gr. oz. dwt. gr. car. gr. oz. dwt.
As 94 : 77 13 18 :: 88 : 72 14
20

car. gr.	
88	1553
6	24
<u>94</u>	<u>37290</u>
	88
	<u>24</u>
94) 3281520	(34909 (14514
	461 109 72 14 gr. wt.
	855 130
	<u>920</u> 100
	74 4

CASE

C A S E IX.

Given the weight, and fineness of one ingot, and the weight of another, to find what weight of it will make them both standard. *Præcog. XV.*

Example 18. How much must I melt of silver Br. $\frac{15}{12}$ with 333 oz 13 dwt. which is Wo. $\frac{15}{12}$ to make the whole standard ?

dwt.	oz.	dwt.	dwt.	oz.	dwt.
As 13	:	333	13	::	$32\frac{1}{2}$
		20			$333\ 13\ 2\frac{1}{2}$
		6673			667 6
		$32\frac{1}{2}$			166 $16\frac{1}{2}$
		13346			834 $2\frac{1}{2}$
		20019			
		$3336\frac{1}{2}$			
		13)21687 $2\frac{1}{2}$			
		210)1668 $2\frac{1}{2}$			
		834 2 12			

The work of these questions will be much shortened when the fineness of the given ingot can be divided by that of the required one, as in the present case $32\frac{1}{2}$ is $2\frac{1}{2}$ times 13, and we have worked it both ways, as likewise the next example.

Example

Example 19. What quantity of gold reported
 Br. $\overset{\text{car gr}}{1 \frac{1}{11}}$ will standard 549 oz. 1 dwt. 11 gr.
 report d Wo $\overset{\text{car gr}}{11 \frac{1}{11}}$

cr. gr. oz. dwt. gr.	cr. gr.	Or thus	oz. dwt. gr.
As 6 : 549	1 11 :: 13	549	1 11
	13		2 $\frac{1}{2}$
6) 7137 18 23	6) 13(2 $\frac{1}{2}$	1098	2 22
1189 13 3 $\frac{1}{2}$		91 10 5 $\frac{1}{2}$	
		1189 13 3 $\frac{1}{2}$	

Example 20. A gold ingot reported Wo. $\overset{\text{car}}{11 \frac{1}{11}}$
 $\overset{\text{gr}}{68}$ requires 655 oz. 17 dwt. 21 gr. of fine gold
 to standard it, what does it contain?

car. cr. gr	oz. dwt. gr.
2 or 8 r port fine gold	665 17 21
3 2 $\frac{1}{2}$ = 14 $\frac{1}{2}$ that of report	8
2	
or 29 half ca. gr.	5327 3 0
	2
	oz. dwt gr.
	29) 10654 6 0 (367 7 19
	195
	214
	11
	20
	29(226(7 dwt.
	23
	24
	29'552(19 gr.

This

This is a very useful case, and that by which the tables are formed, for standarding ingots of any fineness that are worse, with others that are better than standard.

CASE X.

Given the weight of two ingots, which being melted together are standard, and the fineness of one required that of the other. *Præcog.* XVI.

Example 21. Two silver ingots weighing 287 oz. 3 dwt. and 898 oz. 19 are melted together and found to be standard, the first was Wo. ⁰³ ^{8/16} ₁₁ _{viij} how fine was the other?

oz. dwt.	oz. dwt.	oz. dwt.
898 19	: 2 8 ::	287 3
20	20	20
17979	48	5743
		48
		45944
		22972
		17979)275664(15 or Br. ^{8/16} ₈
		95874

for what remains 5979 see examp. 15.

Example

Example 22. An ingot of 665 oz. 17 dwt. 21 gr. of fine gold is melted with another ingot of 367 oz. 7 dwt. 19 gr., which made it standard, how fine was the last ingot ?

oz.	dwt.	gr.	cr.	oz.	dwt.	gr.
As 367	7	19	: 2	:: 665	17	21
20			4	20		
7347			8	13317		
24				24		
29407				53289		
14694				26634		
176347				319629		
				8		
				ca. gr.		
				176347)2557032(14½		
				793562	8	alloy in stan.
				remains 88174	—	cr gr
					6½	or Wo. 1 11 28

C A S E XI.

Wherein is given the finenesses of two ingots, which when melted together are standard, and the weight of one of them, to find that of the other.

Præcog. XV.

E

Example

Example 23. An ingot of silver weighing 79 oz. 8 dwt. Br. $\frac{1}{2}$, and another reported Wo. $\frac{1}{2}$ being melted together are standard, what does the last ingot weigh?

dwt.	oz.	dwt.	dwt.		oz.	dwt.
As $3\frac{1}{2}$	:	79	8	::	7	Or thus $3\frac{1}{2}$)7(2
2			7			
7		555	16			79 8
			2			2
		7	1111	12		158 16
			158	16		

Example 24. An ingot of gold reported Wo. $\frac{1}{4}$ requires 126 oz. 6 dwt. 18 gr. of gold Br. $\frac{1}{4}$ to standard it, what is the weight of the ingot?

ca.	oz.	dwt	gr.	cr.		oz.	dwt	gr.
As $1\frac{1}{4}$	:	126	6	18	::	$1\frac{2}{3}$	Or thus 5)7(1 $\frac{2}{3}$	
4			7	4				
5	5	884	7	6	7	126	6	18
		176	17	10 $\frac{4}{5}$				1 $\frac{2}{3}$
						126	6	18
						25	5	8 $\frac{2}{3}$
						25	5	8 $\frac{2}{3}$
						176	17	10 $\frac{4}{5}$

C A S E XII.

Given the weights of two or more ingots which are melted together, and the fineness of one of them, required the quantity of standard contained in the mass. *Præcog. XVI.*

Example 25. An ingot of silver weighing 97 oz. 15 dwt. Br. M^{b} is melted with another which weighs 40 oz. W^{b} C^{bij} how much standard is there in the mass?

oz. dwt.	dwt.	oz. dwt.	oz.
97 15	222	97 15	40
40 0	9	20	20
137 15	231	1955	800
20		231	205
	222		
2755	17	1955	4000
		5865	1600
	205	3910	
			164000
	451605	451605	
			210
		222)615605(277 3	
		1716	138 13stan
		1620	
		665	

Example

Example 25. A gold ingot of 28 oz. 18 dwt. Wo. ^{car gr}₁₁ is melted with another weighing 48 oz. 8 dwt. Br. ^{car gr}₁₁ $\frac{1}{4}$ what standard does the mass contain ?

ca.gr.	oz. dwt.	oz. dwt.
88	48 8	28 18
<u>5 $\frac{1}{4}$</u>	<u>20</u>	<u>20</u>
93 $\frac{1}{4}$	968	578
<u>—</u>	93 $\frac{1}{4}$	<u>77</u>
88	<u>—</u>	<u>—</u>
11	2904	4046
<u>—</u>	8712	4046
77	242	<u>—</u>
	<u>90266</u>	to 44506
		add 90266
		<u>—</u> 210
		88)134772(1531
		467 76 11 $\frac{1}{4}$ stand.
		277
		132
		<u>—</u> 44

If the ingots are both better or both worse, the question is best worked by the number of fine parts in each ; but if some are better and others worse, it is easier done by the fine parts in the report as follows.

Example 24.

oz.	oz. dwt.
40	97 15
20	20
800	1955
17	9
13600	17595
	13600
oz. dwt.	dwt.
97 15	222) 3995(18
40 0	1775
137 15	
18	
138 13 standard	

Example. 25

oz. dwt.	oz. dwt.
48 8	28 18
20	20
968	578
5 $\frac{1}{4}$	11
4840 from	6358
242 take	5082
5082	88) 1276(14 $\frac{1}{2}$
	396
	44
oz. dwt.	
48 8	
28 18	
from 77 6	
take 14 $\frac{1}{2}$	
76 11 $\frac{1}{2}$ stand.	

Or thus without reduction.

oz. dwt.	oz	oz dwt.	oz. dwt.
97 15	40	28 18	48 8
9	47	11	5 $\frac{1}{4}$
from 879 15	680	317 18	242 0
take 680 0		254 2	12 2
199 15		63 16	254 2
20		20	
222) 3995(18 dwt.	88) 1726(14 $\frac{1}{2}$		
1775	396		
	44		

CASE XIII.

Given the weights, or finenesses, of two or more ingots which are melted together, required the fineness of the mass. *Præcog. XVI.*

Example

Example 26. Two silver ingots are melted together, one weighs 111 oz. 12 dwt. Br. ²¹ the other 74 oz. 8 dwt. Wo. ²¹ how fine is the mass?

oz.	dwt.	oz.	dwt.	oz.	dwt.
74	8	111	12	111	12
20		74	8	20	
1488		186	0	2232	
203		20		233	
4464		3720		6696	
2976				6696	
302064				4464	

to 520056
add 302064 dwt. ²¹

372|0)82212|0(221 or Wo. ²¹
781
372 1

Or thus without reduction.

oz.	dwt.	oz.	dwt.
111	12	74	8
	233		203
334	16	223	4
3348	0	14880	0
22320	0		
		15103	4
26002	16		
15103	4		

18 6)41106 0(221
390
186

Example

Example 27. Two ingots of gold are melted together, the first weighs 169 oz. 16 dwt. Wo. $\overset{\text{car}}{\underset{\text{ij}}{\text{j}}} \overset{\text{gr}}{\underset{\text{j}}{\text{j}}}$ the second 76 oz. 16 dwt. Br. $\overset{\text{cr}}{\underset{\text{j}}{\text{j}}} \overset{\text{gr}}{\underset{\text{ij}}{\text{ij}}} \frac{1}{4}$ what is the report of the mass?

oz. dwt.	oz. dwt.	oz. dwt.
76 16	169 16	169 16
20	76 16	20
1536	246 12	3396
94 $\frac{1}{4}$	20	79
6144	4932	30564
13824		23772
384		
	add 268284	
144768	to 144768	
	4932) 413052 (83 $\frac{1}{4}$	Wo. $\overset{\text{car}}{\underset{\text{j}}{\text{j}}} \overset{\text{gr}}{\underset{\text{o}}{\text{o}}} \frac{1}{4}$
	18492 88	
	3696 —	
	4 $\frac{1}{4}$	

If the ingots are both better or both worse it is best to work them by the total number of fine parts as above, but if one is better and the other worse, it is easiest worked by the fine parts in the report as Examp. 24 and 25 in the last case.

oz. dwt.	car. dwt.	oz. dwt.	oz. dwt.
74 8	111 12	76 16	169 16
20	20	20	20
1488	2232	1536	3396
19	11	6 $\frac{1}{4}$	9
28272 take 24552	9216	30564	
from 28272	384	9600	
	9600		
3720) 3720 (1		4932) 20964 (4 $\frac{1}{4}$	Wo. $\overset{\text{cr}}{\underset{\text{j}}{\text{j}}} \overset{\text{gr}}{\underset{\text{o}}{\text{o}}} \frac{1}{4}$
or Wo. $\overset{\text{cr}}{\underset{\text{j}}{\text{j}}} \overset{\text{gr}}{\underset{\text{o}}{\text{o}}} \frac{1}{4}$		1236	

C A S E XIV.

Given the gross weight of an ingot of parting, with the report of the fine gold and fine silver in the lb. wt. required the quantity of each in the ingot.

Example 28. How much fine gold and fine silver is contained in an ingot of parting, weighing

15⁰⁰ oz. 10 dwt. reported Wo. ^{03 2/16} fine gold
^{03 2/16} ?
 1 1111

oz. dwt.	dwt.
158 10	from 3170 gross wt.
20	take 317 fine gold
3170	remains 2853 silver and alloy
24	186
12680	17118
6340	22824
209	2853
240)7608 0(317 fine gold	240)53065 8(2211 fine silv.
40 15 17	50 110 11
168	26
	25
	18 parts of a dwt.

CASE XV.

Given the gross weight of an ingot, the report of the gold, and the quantity of fine silver in the ingot, required the report of the silver, and the quantity of fine gold.

Example 30. An ingot of parting weighs 105 oz. 12 dwt. has 95 oz. 11 dwt. of fine silver, and the gold is reported $\frac{21}{21}$ in the lb. wt. how much fine gold is there in the ingot, and what is the report of the silver?

oz. dwt.		oz. dwt.
105 12		95 11
20		20
2112		1911
25 gold report		240
10560		7644
4224		3822
2112 gr. wt.		
48 0)5280 0(110 fi. gold 2002)		45864 0(229 Br. $\frac{21}{21}$
48		5824 222
2002 of silv. & al.		1820 —
		182 7 report

C A S E XVI.

Given the gross weight, the weight of the fine gold, and the report of the silver, required the quantity of fine silver, and report of the gold.

Example 31. An ingot of parting weighs 156 oz. 16 dwt. the silver is reported $\frac{20}{251}$ it has 9 oz. 16 dwt. of fine gold in it, what is the report of the gold, and the quantity of fine silver in the ingot?

oz. dwt.	oz. dwt.
9 16	156 16
20	20
196	3136
240	196 fine gold
7840	2940
3920	205 fil. report
3920 dwt.	
3136)47040(15 gold report	14700
15680	5880
	24 0)60270 0($\frac{20}{251}$ 1
	122
	27
	30
	.60
	125 11 $\frac{1}{4}$
	[fine silver

C A S E XVII.

Given the gross weight of an ingot of parting, and the weights of fine gold, and fine silver, to find the reports.

Example 32. An ingot of parting weighs 252 oz. 15 dwt. has 211 oz. 7 dwt. of fine silver, and 16 oz. 17 dwt. of fine gold, what are the reports?

oz. dwt.	oz. dwt.	oz. dwt.
252 15	211 7	16 17
20	20	20
5055 gr.wt. 4227		337
337 fine gold 240		240
4718	169080	13480
	84540	6740
	222 stand.	dwt.
4718)1014480(215	Wobij	5055)80380(16 gold
7088		30330 [report
23700	7 silver report	
110		

C A S E XVIII.

Given the report of the silver, the quantity of fine silver, and the quantity of fine gold, required the gold report, and gross weight.

Example 31. An ingot of parting has the silver reported Br. $\frac{5}{11}$ it contains 46 oz. 11 dwt. of fine silver, and 5 oz. 10 dwt. of fine gold, what is the gross weight, and the gold report?

oz. dwt.		oz. dwt.
46 11		5 10
20		20
93 1		110
240		240
37240		440
18620		220
	[and alloy	dwt.
228) 223440 (980 fine silver	109 0) 2640 0 (24 gold	
1824	110 fine gold	460 [report
		remains 24 pts. of a dt.
109 0		24
54 10 gross wt.		
		96
		48
		109) 576 (5 grains,
		31

N. B. They never report less than 6 grains

C A S E XIX.

Given the gold report, the quantity of fine gold, and the quantity of fine silver, to find the report of the silver, and the gross weight.

Example 32. A parting ingot contains 12 oz. 12 dwt. of fine silver, and the gold report is $\frac{2}{16}$ in the lb. what is the weight of the ingot, and the report of the silver?

oz. dwt.		oz. dwt.
12 12		139 18
20		20
252		2798
240		240
10080		111920
5040		55960 dwt.
18)60480(3360	grosswt. 3108	671520 (216 or Wo. $\frac{2}{16}$)
64	252 fine gold	4992
108		18840 6 report
	3108 fil. & alloy	192

C A S E XX.

Given the gross weight, and reports, of two or more ingots of parting, to find the quantity of fine gold and fine silver in the mass?

Example

Example 34. An ingot of parting weighing 97 oz. 4 dwt. reported fine gold $\overset{03}{\underset{1}{\text{C}}} \overset{\text{M}^b}{\text{Br.}}$ is melted with another weighing 72 oz. 16 dwt. the silver reported $\overset{03}{\underset{1}{\text{M}^b}}$ fine gold $\overset{\text{M}^b}{\text{C}^b}$ what is the quantity of fine gold, and fine silver in the mass and the report?

dwt.	oz. dwt.
222	97 4 gros wt.
<u>7</u>	<u>20</u>
229	1944 dwt.
gold report	<u>30</u> 1944
24 0)5832 0	(<u>243</u>
103	1701 silver and alloy
<u>72</u>	<u>229</u>
	15309
	<u>3402</u>
	<u>3402</u> dwt.
	24 0)38952 9
	(1623 fine silver
oz. dwt.	
72 16 gros wt.	
<u>20</u>	
1456	
gol. report 15 dwt.	
<u>1456</u>	
24 0)2184 0	(91
24	
1365	silver and alloy
<u>198</u>	
10920	
<u>12285</u>	
1365	
24 0)27027 0	(1126 fine silver

dwt.

243 fi. gold in the 97oz. 4dwt.

91 fi. gold in the 72oz. 16dwt.

334 quantity fine gold in mass

240

gross wt. 1944 13360

ditto 1456 6680

dwt.gr. (in the mass

total gr. wt. 34|00)801|60)23 12 report of the gold

121 1 oz. iij $\frac{1}{2}$ in lb.

1960

4

34|00)7840(2 quarter dwts. or 12 gr.

dwt.

1126 fine silver

1623 fine silver

2749 fine silver in the mass

240

dwt.

silver & alloy 1365 109960

ditto - 1701 54980

dwt.

total - 3066) 659760(215

222

report of the silver in the mass 7 or Wo. viij $\frac{1}{2}$

oz. dwt.

Quantity of { fine gold - 16 14

{ fine silver - 137 9

03 $\frac{1}{2}$ *Report { fine gold - 1 iij $\frac{1}{2}$

{ silver Wo. - viij

* The manner of valuing these is found in the next section, and the refiner deducts 4d. per oz. for the parting of it.

The

Instead of reporting the quantity of fine silver contained in a parting assay, by the relation it has to standard, or how much it is better or worse than standard, it is sometimes reported as the gold by its quantity in the lb. weight.

Example 33. What quantity of fine gold and fine silver is contained in an ingot of parting weigh-

ing 158 oz. 10 dwt. reported fine gold $\overset{05}{\underset{i}{\text{dms}}}$
fine silver $\overset{05}{\underset{viii}{\text{dms}}}$

oz. dwt.	oz. dwt.
158 10	158 10
<u>20</u>	<u>20</u>
3170	3170
24 gold report	171 silver report
<u>12680</u>	<u>3170</u>
6340	53890
<u>240</u>	<u>20</u>
24 0)7608 0(31 7	24 0)542070(225 8 $\frac{5}{8}$ fine silver
15 oz. 17 dwt.	112 oz. 18 dt. 15 gr.

How this should have been reported in the usual way, the following work shews:

dwt.	dwt.	dwt.	dwt.	dwt.
from 240	Then as 216 : 240 ::	171 : 190		
take 24		171		
<u>216 fi. fil. & alloy</u>		240		
		1680 dwt.		
		<u>240</u>		222 stand.
		216)41040(190 take		
		32 or Wo.		

Which being cast up as in Examp. 28. will give the same answer as above, or 112 oz. 18 dwt. 15 gr. of fine silver in the ingot.

The Doctrine of Value.

CASE XXI.

Given the value of an ounce of standard, or that of $\overset{os}{\mathfrak{C}i} \overset{ss}{\mathfrak{M}ij}$ in silver and $\overset{car}{\mathfrak{C}Cij}$ in gold to find that of an ounce of any other fineness. *Præ.* XIX.

Example 30. When standard silver is 5 s. 2 d. per oz. what is an ounce of fine silver worth, or that which is Br. $\overset{ss}{\mathfrak{C}viii}$?

dwt.	s. d.	dwt.	d.
As 222	: 5 2	:: 240	Or thus 37 : 62 :: 40
	<u>12</u>		<u>40</u>
	62		37)2480(67 $\frac{1}{37}$
	240		<u>260</u>
	<u>2480</u>		
	1240		Or as 37 : 62 :: 3
			<u>3</u> d.
222(14880(67 $\frac{1}{37}$		37)186(5 $\frac{1}{37}$ added	
	5 s. 7 d. per oz.	1 62 to	
		<u>67 $\frac{1}{37}$</u>	

In the second manner of working this question, 222 and 240, being both measured by 6, quote 37, and 40, which are their lowest terms; the third method is by finding the value of the report, and either adding it to, or subtracting it from, the price of standard.

The value of fine silver just now found, is what it has had in our coin for 164 years past, but if it is required when standard is at 5 s. 6d $\frac{3}{4}$, it will be just 6 s. for as 37 : 40 :: 5 s 6d $\frac{3}{4}$: 6 s.

G

Exempl

Example 51. What is the value of an ounce of silver reported Wo. $\overset{03}{11} \overset{216}{211}$ when standard is 5s. 7d. per ounce?

dwt.	dwt.	s. d.	dwt.
from 222	As 222	: 5 7 ::	169
take 53		12	67
169		67	1183
			1014
			12)
			222)11323(51
			223 4s 3d per oz.
			I

The usual method of finding the value of a silver assay from the report, is by reckoning the 222 parts or dwts. of which standard silver consists, at 5 shillings and six-pence and $\frac{3}{4}$ of a penny, which is nearly the medium price of standard silver per oz. that (being generally between 5s. 3d. and 5s. 9d. per oz.) at which rate each $2\frac{1}{2}$ dwt. is worth 3 farthings, 5 dwt. is $1d\frac{1}{2}$, $7\frac{1}{2}$ dwt. is $2d\frac{1}{4}$, 10 dwt. is 3d, $12\frac{1}{2}$ dwt. is $3d\frac{3}{4}$, 15 dwt. is $4d\frac{1}{2}$, $17\frac{1}{2}$ dwt. is $5d\frac{1}{4}$, and 20 dwt. or 1 oz. is worth 6 pence, and so on for 2, 3, 4, 5, or more ounces. All the other intermediate reports, but those above, consist of fractional parts, more or less than a farthing.

In the usual rating of silver by the ounce, one farthing is the lowest value considered, the fractions less than that, not being taken notice of; therefore in the following table, we have taken the nearest value to those of a farthing; whether more or less, as where the excess is more than $\frac{1}{2}$ a farthing; we have reckoned a farthing for it, and where it is less than $\frac{1}{2}$ a farthing, it is not reckoned at all. Thus in the following table, N^o 1, 6, 11, 16, 21, 26, 31, and 36, are of the 1st sort, which for $\frac{3}{4}$ of a farthing have one farthing put in the table; and N^o 3, 8, 13, 18, 23, 28, 33, and 38, the same instead of $\frac{4}{5}$ of a farthing; on the contrary, N^o 2, 7, 12, 17, 22, 27, 32 and 37, have besides the farthing in the table $\frac{2}{3}$ of another not taken notice of; and the case is the same with N^o 4, 9, 14, 19, 24, 29, 34 and 39, which have $\frac{1}{3}$ of a farthing unnoticed in the table.

But the true value of these intermediate reports, is contained in 1, 3, 7, 9, 11, 13, 17, and 19 twentieths, in 1, 3, 7, and 9 tenths, and 1, 2, 3 and 4 fifths of a penny, and therefore the decimal notation is much the properest to be used here by those who are acquainted with it.

A TABLE of the value of each $\frac{1}{2}$ dwt. of betterness, or worseness, in a silver assay from 1 halfpenny weight to 40, or to 1 ounce.

No	dwt.	d.	No	dwt.	d.	No	dwt.	d.
1	℥	$\frac{1}{4}$	14	vij	2	27	℥iij ℥	4
2	i	$\frac{1}{4}$	15	vij ℥	$2\frac{1}{4}$	28	℥iiij	$4\frac{1}{4}$
3	i ℥	$\frac{1}{2}$	16	vij ℥	$2\frac{1}{2}$	29	℥iiij ℥	$4\frac{1}{4}$
4	ij	$\frac{1}{2}$	17	vij ℥	$2\frac{1}{2}$	30	℥v	$4\frac{1}{2}$
5	ij ℥	$\frac{3}{4}$	18	ix	$2\frac{3}{4}$	31	℥v ℥	$4\frac{3}{4}$
6	iii	1	19	ix ℥	$2\frac{3}{4}$	32	℥vi	$4\frac{3}{4}$
7	iii ℥	1	20	℥	3	33	℥vi ℥	5
8	iiij	$1\frac{1}{4}$	21	℥ ℥	$3\frac{1}{4}$	34	℥viij	5
9	iiij ℥	$1\frac{1}{4}$	22	℥i	$3\frac{1}{4}$	35	℥viij ℥	$5\frac{1}{4}$
10	v	$1\frac{1}{2}$	23	℥i ℥	$3\frac{1}{2}$	36	℥viij	$5\frac{1}{2}$
11	v ℥	$1\frac{3}{4}$	24	℥ij	$3\frac{1}{2}$	37	℥viij ℥	$5\frac{1}{2}$
12	vij	$1\frac{3}{4}$	25	℥ij ℥	$3\frac{3}{4}$	38	℥ix	$5\frac{3}{4}$
13	vij ℥	2	26	℥iij	4	39	℥ix ℥	$5\frac{3}{4}$
						40	i oz	6

If the values are calculated to $\frac{1}{8}$ a farthing, or one 8th of a penny per oz. then the following reports will have the following values, instead of those above, but the others will still stand as they do there.

1	℥	$\frac{1}{8}$	16	vij	$2\frac{3}{8}$	29	℥iiij ℥	$4\frac{3}{8}$
4	ij	$\frac{5}{8}$	19	ix ℥	$2\frac{7}{8}$	31	℥v ℥	$4\frac{5}{8}$
6	iii	$\frac{7}{8}$	21	℥ ℥	$3\frac{1}{8}$	34	℥viij	$5\frac{1}{8}$
7	iii ℥	$1\frac{3}{8}$	24	℥ij	$3\frac{5}{8}$	36	℥viij	$5\frac{3}{8}$
11	v ℥	$1\frac{5}{8}$	26	℥iij	$3\frac{7}{8}$	39	℥ix ℥	$5\frac{7}{8}$
14	vij	$2\frac{1}{8}$						

These

These values being added to, or subtracted from, the price of one ounce of standard will give the value of one ounce of any of these finenesses; thus the value of an ounce of silver

W_{o.} $\overset{03}{ij} \overset{di}{\text{C}^{iii}}$ as in the last Example, is found by the table to be 4 s. 3 d. as before.

	s. d.
from the price of 1. oz. of standard	5 7

	s. d.
take for the 2 oz. in the report	1 0

and for the 13 dwt. in ditto	- - 4
------------------------------	-------

	s. d.
remains the value of 1 oz. W _{o.} $\overset{03}{ij} \overset{di}{\text{C}^{iii}}$	1 4 4 3

The above tables give the just value, when standard silver is 5 s. 6 d. $\frac{3}{4}$ per oz. but deviates from it as the price is, more or less than that, but this difference does not amount to a farthing per oz. nor make any difference in the tabular values between 5 s. 3 d. $\frac{1}{2}$, and 5 s. 9 d. $\frac{1}{2}$, (within which rates standard silver usually runs) but when it is at the 1st price, each oz. instead of 6 d., is but 5 d. $\frac{3}{4}$, and at the last price it becomes 6 d. $\frac{1}{4}$.

Example

Example 32. What is the value of an ounce of fine gold, or that which is Br. ^{car} _{ij} when standard gold is worth 3 l. 18 s. per ounce.

car. 1 s. ca. 1 s. As 22 : 3 18 :: 24 78 24 312 156 22)1872(85 ¹/₁₁ 112 4l. 5s. fine gold per oz. 2	Or as 11 : 12 :: 3 18 12 11)46 16 4 5 ¹/₁₁
---	---

If the price is 3 l 17 s 11 d

Then as 11 : 12 :: 3 17 11

12

11)46 15 0

4 5 0 exactly

N. B. Our money is coined at 3 l 17 s 10 d ¹/₂ per ounce.

Example

Example 33. What is the value of an ounce of gold, reported Wo. $\overset{ca}{1} \overset{gr}{11} \overset{s}{8}$ when standard is 3 l 18 s per oz?

cr.	ca.	gr.	cr.	gr.	l.	s.	cr.	gr.
22	1	$3\frac{1}{4}$	As	352	3	18	::	323
4	4			20				78
88	7			78				2584
4	4							2261
352	29			352	25	194	$(7\frac{1}{2})$	
29								554
								3 l 11 s 6 d $\frac{7}{8}$
323								202
								12
				352	24	24	(6 pence	
								312
								4
				352	12	48	(3 far-	
								192
								[things

The readiest way of finding the value of an ounce of gold of any fineness, from the assay, is to reckon each carat at 3 s 6 d $\frac{1}{2}$, each carat grain at 10 d $\frac{5}{8}$, and each $\frac{1}{4}$ of a carat grain at 2 d $\frac{5}{8}$, which is their value, when standard is at 3 l 17 s 11 d per oz. and the following table is calculated at that price.

A TABLE of the value of each quarter carat grain, between 1 and 16, or to one carat, in a gold assay, when standard gold is 3 l 17 s 11 d per oz.

cr	gr	s.	d.	cr.	gr.	s.	d.	cr.	gr.	s.	d.	cr.	gr.	s.	d.
	$\frac{1}{4}$	0	2 $\frac{5}{8}$	1	$\frac{1}{4}$	1	1 $\frac{1}{4}$	1	$\frac{1}{4}$	1	11 $\frac{7}{8}$	1	$\frac{1}{4}$	2	10 $\frac{1}{2}$
	$\frac{1}{2}$	0	5 $\frac{1}{4}$	1	$\frac{1}{2}$	1	3 $\frac{7}{8}$	1	$\frac{1}{2}$	2	2 $\frac{1}{2}$	1	$\frac{1}{2}$	3	1 $\frac{1}{4}$
	$\frac{3}{4}$	0	8	1	$\frac{3}{4}$	1	6	1	$\frac{3}{4}$	2	5 $\frac{1}{4}$	1	$\frac{3}{4}$	3	$\frac{7}{8}$
1	ca. gr.	0	10 $\frac{3}{8}$	1	1	9 $\frac{1}{4}$	1	1	1	2	7 $\frac{7}{8}$	1	carat	3	6 $\frac{1}{2}$

But the usual way with the refiners, is to reckon each carat in an assay at 4 s. each carat grain at 1 s. and each quarter carat grain at 3 d; that is, estimating standard at 4 l 8 s in the assay, and 3 l 18 s in the ingot.

The questions in the last examples are answered by the table as follows :

l. s. d.

To 3 17 11 value of standard

Add 0 7 1 value of 2 carats

Value of 4 5 0 fine gold per oz.

l. s. d.

From 3 18 0 value of standard

Take 0 6 5 value of 1 car. 2 gr. $\frac{1}{4}$

Value of 3 11 7 gold Wo. 1 car. 2 $\frac{1}{4}$ gr.

C A S E XXIII.

Given the finenesses of two sorts, of gold or silver, and the value of one of them to find that of the other. *Præcog. XX.*

Example 33. An ounce of silver Wo. $\overset{03}{\underset{1}{\text{dwt.}}}$ being worth 4 s. 8 d. what is the price of standard?

dwt.	dwt. s. d.	dwt.
222	As 187 : 4 8 ::	222
35	12	56
187	56	1332
		1110
		12
		187)12432(66
		1212
		90
		5 s. 6 d. $\frac{2}{3}$

By the Table

	s. d.	
Add	0 10 $\frac{1}{2}$	for 1 oz. 15 dwt. worse
To	4 8	the given value
	5 6 $\frac{1}{2}$	Stand. per oz.

H

Example

Example 34. An ounce of gold Br. $\frac{1}{4}$ car. $\frac{3}{4}$ gr. is worth 4l. 4s. 4d. at what price is standard per ounce?

car. cr. gr. $\frac{1}{4}$ cr. gr. l. s. d. $\frac{1}{4}$ ca. gr.

22 1 $3\frac{1}{4}$ As 381 : 4 4 4 :: 352

4 4 20

88 7 84

4 4 12

352 29 1012

29 352

381 2024

5060

3036

381) 356224 (934 $\frac{370}{387}$

1332 717 11 nearly

1894 317s 11d stan. per oz.

370

By the Table

l. s. d.

From 4 4 4 the given price

Take 0 6 5 for 1 car. $3\frac{1}{4}$ gr. Wo.

3 17 11 Stand. per oz.

C A S E XXIV.

Given the value per oz. of two sorts of gold or silver, and the fineness of one of them, to find that of the other. *Præcog. XX.*

Example 35. What is the value of an ounce of new sterling* silver, or that which is Br. ^{8/16} viij when standard is 5 s. 7 d. per oz.

dwt.		dwt.	s. d.	dwt.
222	As	222	:: 5 7 ::	230
8			12	67
230			67	1610
				1380
				12)
				222)15410(69 ³ / ₈
				2090
				5s. 9d. ³ / ₈ pr oz
				remains 92
				8
				222)736(3-8ths of a
				70 [penny]

By the Table

s. d.

To 5 7 standard per oz.
Add 0 2³/₈ for the 8 dwt. better

5 9³/₈ value of 10z. of new sterling

* By an act of 8 and 9 Wm. III. no other silver but of this fineness was to be made into plate, after 25 Mar. 1697, which continued in force till 1 June, 1720, when the obligation was taken off, by an act of 6 Geo. I. it is all marked with a Lyon's head erased, and a Britannia.

Example 36. What is the value of an ounce of gold Wo. $\frac{tr}{iii}$ when standard is 3 l. 18 s. per ounce?

car.	ca.	l.	s.	car.
22	As 22 :	3	18	:: 19
3		20.		78
19		78		152
				133
				22)1482(67
				162
				8
				remains
				12
				22)96(4 pence
				8

By the Table

l. s. d.

From 3 18 0 price of standard
 take 0 10 $7\frac{1}{2}$ for 3 carats worse

 3 7 $4\frac{1}{2}$ value per ounce required

CASE

C A S E XXV.

Given the weight and fineness of an ingot, with the price of standard per oz. to find the value of that ingot. *Præcog. XXI.*

Example 37. What is the value of an ingot of silver, weighing 120 oz. 18 dwt. reported Wo. $\overset{05}{\underset{1}{\text{d}}} \overset{16}{\underset{11}{\text{m}}} \text{ 86}$, standard silver being 5 s. 6 d. per ounce?

dwt.	dwt.	oz. dwt.	dwt.
222	As 222 :	120 18 ::	198 $\frac{1}{2}$
$23\frac{1}{2}$		20	
198 $\frac{1}{2}$		2418	
		198 $\frac{1}{2}$	
		19344	
		21762	
		2418	
		1209	
		222)479973(216 2	
		359	108 oz. 2 dwt. stan.
		1377	[in the ingot
		453	
		9	

Then

oz.	s. d.	oz. dwt.	l. s. d.
Then as 1 : 5 6 :: 108 2 : 29 14 6 ³ / ₄			
20	12	20	
20	66	2162	
		66	
		19972	
		12272	
		2 0)14269 2	
		12) 7134 ³ / ₄	
		2 0) 59 4s 6d	
		Value 29l 14s 6 ³ / ₄ d of the ingot	

Besides the above method of performing this question, by which we have first found the quantity of standard in the ingot, (as in Example II. CASE VI.) and then cast it up at the standard price; there is another way of answering it.

That, is by finding the value of one ounce of the ingot (as in Examp. 31) which we have done 3 different ways; 1st, by the fine parts in the ingot; 2^{dly}, by those in the report, and then subtracted it from that of standard; lastly, it is done by the table, which value being multiplyed into the gross weight, will give the value of the ingot the same as before.

$$\begin{array}{r}
 \text{dwt.} \quad \text{d.} \quad \text{dwt.} \\
 \text{1st. As } 222 : 56 :: 198 \frac{1}{4} \\
 \hline
 1191 \\
 1191 \\
 \hline
 12) 222) 13101 (59 \frac{1}{4} \\
 2001 \quad 4 \text{ s. } 11 \text{ d. } \frac{1}{4} \\
 \hline
 3
 \end{array}$$

Or the price per oz. may be found thus :

$$\begin{array}{r}
 \text{dwt.} \quad \text{d.} \quad \text{dwt.} \\
 \text{2d. As } 222 : 66 :: 23 \frac{1}{2} \\
 \hline
 198 \\
 132 \\
 \hline
 33 \quad \text{d.} \\
 \hline
 66 \\
 222) 1551 (7 \text{ nearly} \\
 1551 \quad \hline
 12) 59 \quad \text{[per oz.]} \\
 4 \text{ s. } 11 \text{ d. value of the ingot}
 \end{array}$$

Or thus by the Table

$$\begin{array}{r}
 \text{s.} \quad \text{d.} \\
 \text{3d. From } 5 \quad 6 \text{ price of standard} \\
 \text{Take } 0 \quad 7 \text{ for } 23 \frac{1}{2} \text{ dwt, worse} \\
 \hline
 \end{array}$$

Value 4s 11 of the ingot per oz.

Then

Then for the value of the ingot, it will be

oz.	s.	d.	oz.	dwt.	l.	s.	d.
As	1	:	4	11	::	120	18 : 29 14 6 $\frac{1}{2}$
	20		12			20	
	20		59			24	18
						59	
						21	762
						120	90
						2	10
						12	7
						2	10
						59	4 5
						29	14s 5d value of ingot

We have resolved the above question in the same manner as most of the others; that is, by reduction and the rule of three; but we will now shew how it may be done by practice, as being the readiest in business, which is perform'd by taking the aliquot parts either of the value or the weight, and we have worked it both ways, and likewise both by the standard weight and the gross weight,

oz.	dwt.	s.	d.
108	2	5	6
5 s.	540		
6 d.	54		12
2 dwt.	0	6	$\frac{1}{2}$
2	10	59	4 6 $\frac{1}{2}$
29	14	0	value of 108 oz.
		6 $\frac{3}{4}$	ditto of 2 dwt.
29	14	6 $\frac{3}{4}$	of the ingot

oz. dwt. gr.			l. s.		
90 12 4 of standard at			3 18 per oz.		
3			15		
3 l.	270		58	10	
2 s.	9			6	
16 s.	72				
10 dwt.	1	19	90 oz.	359	0
2 dwt.	0	7 $9\frac{3}{5}$	10 dwt.	1	19
4 gr.	0	0 $7\frac{3}{4}$	2 dwt.	0	7 $9\frac{3}{5}$
			4 gr.	0	0 $7\frac{3}{4}$
353 7 $5\frac{1}{2}$			353 7 $5\frac{1}{2}$		
value required					

We have found the quantity of standard by two different methods, and cast up their value at the price of standard per oz. two different ways also; we shall now find the value of the gold per oz. (three different ways) and cast it up by the gross weight.

l. s.

$$\begin{array}{r} 3 \ 18 \\ 23\frac{1}{2} \\ \hline \end{array}$$

$$\begin{array}{r} 11 \ 14 \\ 78 \ 0 \\ 1 \ 19 \\ \hline \end{array}$$

$$\begin{array}{r} 2)91 \ 13 \\ 11)45 \ 16 \ 6 \\ 4 \ 3 \ 3\frac{9}{11} \end{array}$$

l. s.

$$\begin{array}{r} 3 \ 18 \\ 1\frac{1}{2} \\ \hline \end{array}$$

By the table

$$\begin{array}{r} 3 \ 18 \\ 1 \ 19 \\ \hline \end{array} \quad \begin{array}{l} \text{to } 3 \ 18 \ 0 \\ \text{add } 0 \ 5 \ 3\frac{3}{4} \end{array}$$

$$\begin{array}{r} 2)5 \ 17 \\ 11)2 \ 18 \ 6 \\ \hline \end{array} \quad \begin{array}{r} 4 \ 3 \ 3\frac{3}{4} \end{array}$$

$$\begin{array}{r} \text{add } 0 \ 5 \ 3\frac{9}{11} \\ \text{to } 3 \ 18 \ 0 \end{array}$$

$$4 \ 3 \ 3\frac{9}{11} \text{ value per oz.}$$

oz. dwt. gr.

$$\begin{array}{r} 84 \ 16 \ 12 \text{ gross wt. at } 4 \ 3 \ 3\frac{9}{11} \\ 4 \\ \hline \end{array}$$

l. s. d.

$$\begin{array}{r} 29 \ 3 \ 2\frac{8}{11} \\ 12 \\ \hline \end{array}$$

4 l.	336					
3 s.	12	12				
3 d.	1	1				
$\frac{9}{11}$ d.	0	5	$8\frac{8}{11}$	84 oz.	349	$18 \ 8\frac{8}{11}$
4 dwt.	0	16	8	4 dwt.	0	16
12 dwt.	2	10	0	12 dwt.	2	10
$\frac{1}{2}$ dwt.	0	2	1	$\frac{1}{2}$ dwt.	0	2

$$353 \ 7 \ 5\frac{8}{11} \text{ val. pr oz. } 353 \ 7 \ 5\frac{6}{11}$$

I 2

CASE

C A S E XXVI.

Given the report of a parting assay, and the price of standard gold and silver per oz. to find the value of an ounce of the parting.

Example 39. What is the value of a parting assay, reported fine gold $\overset{95}{\underset{1}{\text{}}} \overset{\text{M}}{\text{C}}$ Wo. $\overset{\text{M}}{\text{C}}$ standard gold being 3l. 17s. 11d. and standard silver 5s 6½d per oz.

1st. Find the quantity of silver by subtracting the quantity of fine gold from 12 oz. 2d. find the value of the silver per oz. 3d. find the value of the silver in 1 lb. wt. 4th. to that value add the value of the fine gold, which will give the value of 1 lb. wt. of the mass; lastly, divide it by 12 gives the value of one ounce of the mass.

oz. dwt.		s. d.
From 12 0 gross wt.	From 5 6½ stand.	
Take 1 10 fine gold	take 4½ for 15	
	[dwt.]	
10 10 silver and alloy at	5 2	
	10	
	10 oz 2 11 8	
	10 dwt. 2 7	
value of the silver in 1 lb. wt.	2 14 3	

to 3l.

l. s. d.

to 3 17 11 standard
 add 7 1 for 2 carats

1 oz. | 4 5 0 fine gold per oz.
 10 dwt | 2 2 6

Value of the 6 7 6 gold in 1 lb.

Value of the 2 14 3 silver in 1 lb.

12) 9 1 9
 Value of the 15 1 $\frac{3}{4}$ parting per oz.

Example 40. What is the value of a parting
 assay reported fine gold $\overset{05}{ij} \overset{d}{\text{iii}} \overset{M}{j}$ Wo. $\overset{05}{i} \overset{d}{\text{vii}}$ stan-
 dard gold being 3 l. 17 s. 11 d. and standard silver
 5 s. 6 $\frac{1}{2}$ d per oz.

oz. dwt.

l. s.

from 12 0 or 1 lb. wt. from 5 6 $\frac{1}{2}$ standard
 take 1 4 fine gold take 0 9 $\frac{1}{2}$ for 1 oz, 12 dwt.

10 16 fil. and alloy at 4 9 silver per oz.

oz. dwt. |
 10 | 2 7 6
 4 | 0 11 $\frac{2}{3}$
 12 | 2 10 $\frac{1}{3}$

value the silver in 1 lb. wt. 2 11 3 $\frac{3}{3}$

To

	l.	s.	d.	
To	3	17	11	
Add	0	7	1	
1 oz.	4	5	0	fine gold per oz.
10 dwt.	0	17	0	
	5	2	0	value of gold in 1 lb.
	2	11	$3\frac{3}{5}$	value of silver in 1 lb.
12)7	13	$3\frac{3}{5}$	value of 1 lb. of the mass	
	12	$9\frac{3}{10}$	value of 1 oz.	

If in the above assay the quantity of fine silver in the lb. wt. had been reported, instead of its worseness, it would have been $\overset{05}{\text{viii}} \overset{\text{dms}}{\text{xi}}$ as appears from the method made use of in Examp. 33 (p. 40.) which being cast up at 6 s. per oz. amounts to 2l. 11s. $3\frac{3}{5}$ d. as before in the other manner of reporting, and the value of the assay is the same both ways.

But the easiest way in business, to cast up the value of these assays, after having found the value of the silver per oz. by the table, is,

First, to put down for each shilling of this value, one penny; and for the parts of a shilling, what stands against such parts, in the little table A; and this as often as there are ounces of fine gold in the report.

Secondly,

Secondly, To this add, what stands in the table B, on the side against such parts of the oz. as are in the gold report, and under the value last found at the top.

Thirdly, Take this sum from the aforefaid value of the silver, and to the remainder add out of table C. for each oz. of fine gold 7s. 1d. for each dwt. $4\frac{1}{4}$ d. and for each $\frac{1}{4}$ dwt. or 6 grains 1d. and you have the value of the assay per ounce.

Here follows the three tables.

A TABLE of what is to be taken from the value of an ounce of silver between 1 penny and 1 shilling, for each ounce of fine gold in the report.

T A B L E A.

between d. d.	d.	between d. d.	d.	between d. d.	d.	between d. d.	d.
1 & $2\frac{1}{4}$	$\frac{1}{8}$	4 & $5\frac{1}{4}$	$\frac{3}{8}$	$7\frac{1}{4}$ & $8\frac{1}{4}$	$\frac{5}{8}$	10 & $11\frac{1}{4}$	$\frac{7}{8}$
$2\frac{1}{2}$ & $3\frac{3}{4}$	$\frac{1}{4}$	$5\frac{1}{2}$ & $6\frac{3}{4}$	$\frac{1}{2}$	$8\frac{1}{2}$ & $2\frac{3}{4}$	$\frac{3}{4}$	$11\frac{1}{4}$ & 12	1

T A B L E

A Table of what is to be taken from the value of an ounce of the silver, for each dwt. of fine gold in the report.

TABLE B.

dwt.	d. 2	d. $2\frac{1}{4}$	d. $2\frac{1}{2}$	d. $2\frac{3}{4}$	d. 3	d. $3\frac{1}{4}$	d. $3\frac{1}{2}$	d. $3\frac{3}{4}$
$\frac{1}{2}$ & $\frac{3}{4}$	—	—	—	—	—	—	$\frac{1}{8}$	$\frac{1}{8}$
1	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{1}{4}$
2	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{3}{8}$
3	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$
4	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$
5	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{7}{8}$	1
6	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{7}{8}$	1	1	$1\frac{1}{8}$
7	$\frac{3}{4}$	$\frac{7}{8}$	$\frac{7}{8}$	1	1	$1\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{1}{4}$
8	$\frac{3}{4}$	$\frac{7}{8}$	1	1	$1\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{3}{8}$	$1\frac{1}{2}$
9	$\frac{7}{8}$	1	$1\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{3}{4}$
10	1	$1\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{1}{3}$	$1\frac{1}{2}$	$1\frac{5}{8}$	$1\frac{3}{4}$	$1\frac{7}{8}$
11	1	$1\frac{1}{4}$	$1\frac{3}{8}$	$1\frac{1}{2}$	$1\frac{3}{4}$	$1\frac{3}{4}$	$1\frac{7}{8}$	2
12	$1\frac{1}{4}$	$1\frac{3}{8}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{3}{4}$	2	2	$2\frac{1}{4}$
13	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{5}{8}$	$1\frac{3}{4}$	2	$2\frac{1}{8}$	$2\frac{1}{4}$	$2\frac{1}{2}$
14	$1\frac{3}{8}$	$1\frac{1}{2}$	$1\frac{3}{4}$	$1\frac{7}{8}$	2	$2\frac{1}{4}$	$2\frac{1}{2}$	$2\frac{5}{8}$
15	$1\frac{1}{2}$	$1\frac{5}{8}$	$1\frac{7}{8}$	2	$2\frac{1}{4}$	$2\frac{1}{2}$	$2\frac{5}{8}$	$2\frac{3}{4}$
16	$1\frac{1}{2}$	$1\frac{3}{4}$	2	$2\frac{1}{4}$	$2\frac{3}{8}$	$2\frac{1}{2}$	$2\frac{3}{4}$	3
17	$1\frac{3}{4}$	$1\frac{3}{4}$	$2\frac{1}{8}$	$2\frac{1}{4}$	$2\frac{1}{2}$	$2\frac{3}{4}$	3	$3\frac{1}{4}$
18	$1\frac{3}{4}$	2	$2\frac{1}{4}$	$2\frac{1}{2}$	$2\frac{3}{4}$	$2\frac{7}{8}$	$3\frac{1}{8}$	$3\frac{3}{8}$
19	$1\frac{7}{8}$	$2\frac{1}{8}$	$2\frac{3}{8}$	$2\frac{5}{8}$	$2\frac{3}{4}$	3	$3\frac{1}{4}$	$3\frac{1}{2}$
20	2	$2\frac{1}{4}$	$2\frac{1}{2}$	$2\frac{3}{4}$	3	$3\frac{1}{4}$	$3\frac{1}{2}$	$3\frac{3}{4}$

A Table of what is to be taken from the value of an ounce of the silver, for each dwt. of fine gold in the report.

T A B L E B. continued.

dwt.	d. 4	d. $4\frac{1}{4}$	d. $4\frac{1}{2}$	d. $4\frac{3}{4}$	d. 5	d. $5\frac{1}{4}$	d. $5\frac{1}{2}$	d. $5\frac{3}{4}$	d. 6
$\frac{1}{2}$ & $\frac{3}{4}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$
1	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$
2	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$
3	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{7}{8}$	$\frac{7}{8}$
4	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{7}{8}$	1	1	1	1	$1\frac{1}{8}$	$1\frac{1}{4}$
5	1	1	$1\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{3}{8}$	$1\frac{1}{2}$	$1\frac{1}{2}$
6	$1\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{3}{8}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{5}{8}$	$1\frac{3}{4}$	2
7	$1\frac{3}{8}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{5}{8}$	$1\frac{3}{4}$	$1\frac{3}{4}$	$1\frac{7}{8}$	2	$2\frac{1}{8}$
8	$1\frac{1}{2}$	$1\frac{3}{4}$	$1\frac{3}{4}$	$1\frac{7}{8}$	2	2	$2\frac{1}{4}$	$2\frac{1}{4}$	$2\frac{1}{2}$
9	$1\frac{3}{4}$	$1\frac{7}{8}$	2	$2\frac{1}{8}$	$2\frac{1}{4}$	$2\frac{3}{8}$	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{3}{4}$
10	2	$2\frac{1}{8}$	$2\frac{1}{4}$	$2\frac{3}{8}$	$2\frac{1}{2}$	$2\frac{5}{8}$	$2\frac{3}{4}$	$2\frac{7}{8}$	3
11	$2\frac{1}{4}$	$2\frac{1}{4}$	$2\frac{1}{2}$	$2\frac{5}{8}$	$2\frac{3}{4}$	$2\frac{7}{8}$	3	$3\frac{1}{8}$	$3\frac{1}{4}$
12	$2\frac{3}{8}$	$2\frac{1}{2}$	$2\frac{3}{4}$	$2\frac{3}{4}$	3	$3\frac{1}{8}$	$3\frac{1}{4}$	$3\frac{1}{2}$	$3\frac{1}{2}$
13	$2\frac{1}{2}$	$2\frac{3}{4}$	$2\frac{7}{8}$	3	$3\frac{1}{4}$	$3\frac{3}{8}$	$3\frac{1}{2}$	$3\frac{7}{8}$	$3\frac{7}{8}$
14	$2\frac{3}{4}$	3	$3\frac{1}{8}$	$3\frac{1}{4}$	$3\frac{1}{2}$	$3\frac{5}{8}$	$3\frac{3}{4}$	4	$4\frac{1}{8}$
15	3	$3\frac{3}{8}$	$3\frac{3}{8}$	$3\frac{1}{2}$	$3\frac{3}{4}$	$3\frac{7}{8}$	$4\frac{1}{8}$	$4\frac{1}{4}$	$4\frac{1}{2}$
16	$3\frac{1}{4}$	$3\frac{3}{8}$	$3\frac{1}{2}$	$3\frac{3}{4}$	4	$4\frac{1}{4}$	$4\frac{3}{8}$	$4\frac{1}{2}$	$4\frac{3}{4}$
17	$3\frac{3}{8}$	$3\frac{5}{8}$	$3\frac{3}{4}$	4	$4\frac{1}{4}$	$4\frac{3}{8}$	$4\frac{1}{2}$	$4\frac{7}{8}$	5
18	$3\frac{1}{2}$	$3\frac{3}{4}$	4	$4\frac{1}{4}$	$4\frac{1}{2}$	$4\frac{3}{4}$	$4\frac{7}{8}$	$5\frac{1}{8}$	$5\frac{3}{8}$
19	$3\frac{3}{4}$	$3\frac{3}{4}$	$4\frac{1}{4}$	$4\frac{1}{2}$	$4\frac{3}{4}$	5	$5\frac{1}{4}$	$5\frac{1}{2}$	$5\frac{3}{4}$
20	4	$4\frac{1}{4}$	$4\frac{1}{2}$	$4\frac{3}{4}$	5	$5\frac{1}{4}$	$5\frac{1}{2}$	$5\frac{3}{4}$	6

A Table of the value of the fine gold contained in a parting assay, for every six grains under one ounce.

TABLE C.

d. gr. s. d.	dt. gr. s. d.	dt. gr. s. d.	dt. gr. s. d.
6 1	5 6 1 10 $\frac{1}{4}$	10 6 3 7 $\frac{1}{2}$	15 6 5 4 $\frac{3}{4}$
12 2	5 12 1 11 $\frac{1}{4}$	10 12 3 8 $\frac{1}{2}$	15 12 5 5 $\frac{3}{4}$
18 3	5 18 2 0 $\frac{1}{4}$	10 18 3 9 $\frac{1}{2}$	15 18 5 6 $\frac{3}{4}$
1 4 $\frac{1}{4}$	6 2 1 $\frac{1}{2}$	11 3 10 $\frac{3}{4}$	16 5 8
1 6 5 $\frac{1}{4}$	6 6 2 2 $\frac{1}{2}$	11 6 3 11 $\frac{3}{4}$	16 6 5 9
1 12 6 $\frac{1}{4}$	6 12 2 3 $\frac{1}{2}$	11 12 4 0 $\frac{3}{4}$	16 12 5 10
1 18 7 $\frac{1}{4}$	6 18 2 4 $\frac{1}{2}$	11 18 4 1 $\frac{3}{4}$	16 18 5 11
2 0 8 $\frac{1}{2}$	7 2 5 $\frac{3}{4}$	12 4 3	17 6 0 $\frac{1}{4}$
2 6 9 $\frac{1}{2}$	7 6 2 6 $\frac{3}{4}$	12 6 4 4	17 6 6 1 $\frac{1}{4}$
2 12 10 $\frac{1}{2}$	7 12 2 7 $\frac{3}{4}$	12 12 4 5	17 12 6 2 $\frac{1}{4}$
2 18 11 $\frac{1}{2}$	7 18 2 8 $\frac{3}{4}$	12 18 4 6	17 18 6 3 $\frac{1}{4}$
3 0 1 0 $\frac{3}{4}$	8 0 2 10	13 4 7 $\frac{1}{4}$	18 6 4 $\frac{1}{2}$
3 6 1 1 $\frac{3}{4}$	8 6 2 11	13 6 4 8 $\frac{1}{4}$	18 6 6 5 $\frac{1}{2}$
3 12 1 2 $\frac{3}{4}$	8 12 3 0	13 12 4 9 $\frac{1}{4}$	18 12 6 6 $\frac{1}{2}$
3 18 1 3 $\frac{3}{4}$	8 18 3 1	13 18 4 10 $\frac{1}{4}$	18 18 6 7 $\frac{1}{2}$
4 0 1 5	9 0 3 2 $\frac{1}{4}$	14 4 11 $\frac{1}{2}$	19 6 8 $\frac{1}{4}$
4 6 1 6	9 6 3 3 $\frac{1}{4}$	14 6 5 0 $\frac{1}{2}$	19 6 6 9 $\frac{1}{4}$
4 12 1 7	9 12 3 4 $\frac{1}{4}$	14 12 5 1 $\frac{1}{2}$	19 12 6 10 $\frac{1}{4}$
4 18 1 8	9 18 3 5 $\frac{1}{4}$	14 18 5 2 $\frac{1}{2}$	19 18 6 11 $\frac{1}{4}$
5 0 1 9 $\frac{1}{4}$	10 3 6 $\frac{1}{2}$	15 5 3 $\frac{3}{4}$	1 03 7 1

What

Example 41. What is the value of a parting assay, reported Br. $\overset{\text{M}}{\text{viii}}$ fine gold $\overset{\text{M}}{\text{xi}}$ standard silver being at 5s. 6d. and standard gold at 3l. 18s. per ounce?

	s.	d.
To the value of standard	5	6
Add that of 8 dwt.		<u>2½</u>
Value of the silver per oz.	5	8½

Then for 5s. take 5d. and from table A, for the 8½d. take $\frac{3}{4}$ d. makes $5\frac{3}{4}$ d. for 1 oz. and for the 2 oz. it makes

11½

And from table B. against 13 dwt. and under * $5\frac{3}{4}$ d take

3½
1 3½
 4 5½

To which add from table C. for 2 oz. of fine gold 14s. 2d. and for 13 dwt. 4s. $7\frac{1}{4}$ d. makes

18 9¼

Value of the assay per oz. — 1 3 2¾

* The bare inspection of the table will shew what to take out when these values happen to be $\frac{1}{8}$, $\frac{3}{8}$, $\frac{5}{8}$, or $\frac{7}{8}$, instead of $\frac{1}{4}$, $\frac{1}{2}$, and $\frac{3}{4}$, which seldom make any difference, and never more than $\frac{1}{2}$ a farthing per oz.

The Doctrine of Pars.

The par of money, or of exchange, is the equated nominal value, which any determinate weight of fine silver or fine gold, has given to it in two different nations or places.

The requisite data to find which par, is the weight and fineness of the piece whose value is sought, and the value of one ounce of standard gold or silver; and as the price of standard alters, so does the par with it.

By indenture between the King and the master of the mint, 62 shillings of standard silver are to weigh 12 ounces, or one pound troy, and 5 shillings and two pence to weigh one ounce, and it appears from Examp. 31. that at this rate 1 oz. of fine silver is worth 5 s. 7 d. and that 1 lb. is 3 l. 7 s. and silver in coin has continued on this footing ever since the year 1601.

By indenture as before, 44 guineas and one half guinea are to weigh one pound troy, each of which passing at 21 shillings, makes the value of the pound weight 46 l. 14 s. 6 d. and the value of 1 ounce is 3 l. 17 s. 10 s $\frac{1}{4}$ d. the value of 1 ounce of fine gold is 4 l. 5 s. and the lb. wt. 50 l. 19 s. 5 s $\frac{1}{4}$ d. and upon this footing our gold has been coined ever since the year 1718.

As

The value of standard in bullion or uncoined silver, is continually fluctuating, being sometimes 5s. 3d. and at other times 5s. 9d. or more, but at present it is about 5s. 6d. which is nearly its value in the neighbouring kingdoms; the value of gold bullion is also subject to change, but not like the silver, and is generally about 3l. 18s. per ounce.

And as no foreign silver coin is suffered to be current in England, but is considered as bullion; therefore it is the price of bullion from which their par or value must be estimated, and not from that of the coin, and the case is the same also with foreign gold coin, except that of Portugal, which however only passes by courtesy, and not by law.

The pars of imaginary money denominations, are drawn from those of the real coins, and besides the different values they will have when estimated from bullion or coin; they will likewise be different if drawn from gold money than if drawn from silver, having the greatest value from the silver, if the proportion is higher, and the least value if it is lower, then in that place with which it is compared.

The materials above are those which compose the doctrine of exchange, and with which its very foundation is laid, yet are seldom so much as mentioned in the treatises we generally have on that subject, so that we can neither investigate the pars, nor examine whether those that are there given are true or false.

The

The same data are given, and the same things required in finding of the par, as are in CASE XXV. and the solution is the same, and may be performed by any of the methods made use of in the Examples under that Case, it being only a particular application of that case to money.

Example 42. What is the value of the Dutch Guilder, or its par in English money, it weighing 6 dwt. 18 gr. and is 11 oz. fine, or Wo. ^{7/16} standard silver being 5s. 6½d. per oz.?

By the Table.

	s.	d.
From	5	6 $\frac{1}{2}$
Take	0	0 $\frac{1}{2}$
	5	6

	dwt.	gr.		s.	d.
Then	6	18	at	5	6
	5 dwt.			1	4 $\frac{1}{2}$
	1 dwt.	6 gr.		0	4 $\frac{1}{8}$
	12 gr.			0	1 $\frac{1}{2}$

1 10 $\frac{1}{8}$ the par.

The par may likewise be found in the following manner, reduce the weight of the piece into grains, and the fineness of it into penny weights, multiply them together, and multiply that product by 623, and dot off the last 6 figures to the right hand, and then

then those to the left hand of the dot are the par in pence, and if the next figures are .25.5, or .75, it is $\frac{1}{4}$, $\frac{1}{2}$, or 3 farthings more.

Thus in the last Examp. 6 dwt. 18 gr. is 162 gr. and 11 oz. is 220 dwt.

$$\begin{array}{r}
 220 \\
 \hline
 3240 \\
 3240 \\
 \hline
 35640 \\
 623 \\
 \hline
 10692 \\
 7128 \\
 21384 \\
 \hline
 \end{array}$$

and the answer is 22d or 1s. 10d. 22.203720

The multiplicator or factor 623, will only be the true one when standard is 5s. 6 $\frac{1}{2}$ d. per oz. and alters with the price of standard, as appears by the following little table.

s. d.	factors	s. d.	factors
5 9	647	5 5	610
5 8 $\frac{1}{2}$	643	5 4 $\frac{1}{2}$	605
5 8	638	5 4	600
5 7 $\frac{1}{2}$	633	5 3 $\frac{1}{2}$	596
5 7	628	5 3	591
5 6 $\frac{1}{2}$	623	5 2 $\frac{1}{2}$	586
5 6	619	5 2	582
5 5 $\frac{1}{2}$	614		

What

Example 43. What is par of the Spanish pillar piece of eight, weighing 17. dwt. 9 gr. or 418 gr. Wo. $\frac{217}{100}$ or 217 dwt. fine, standard silver being 5 s. 4 d per oz. ?

Multiply 418 by 217, the product is 90706, which multiplied by 600, the number against 5 s. 4 d. in the little table, and dotting off 6 figures, the sum is 54.423600 pence, or 4s. 6 $\frac{3}{4}$ d. the value required.

Example 44. What is the value or par of the present French Louis d'or, weighing 5 dwt. 6 gr. and 22 carats fine, or standard ?

dwt. gr.

l. s.

5 6

at

3 18

5 dwt.

0 19 6

6 gr.

0 1 0 nearly

1 0 6 the par

This Louis d'or is current for 24 Livres, therefore 1 livre is worth about 10 $\frac{1}{4}$ d, and the crown of exchange of 3 livres is worth 2s 6 $\frac{3}{4}$ d.

What

Example 44. What is the value of a ducat, weighing 2 dwt. 6 gr. Br. $\frac{11}{12}$ standard being 3 l. 18 s. per ounce?

To	3	18	0	price of standard
Add	0	6	$2\frac{3}{8}$	value of 1 car. 3 gr.
	4	4	$2\frac{3}{8}$	value of ducat gold per oz.
2 dwt.	0	8	5	
6 gr.	0	1	$0\frac{5}{8}$	
	0	9	$5\frac{5}{8}$	the par, or value of the ducat

The par in gold may likewise be found as it was in the silver by a common multiplicator, which when standard is 3 l. 18 s. per oz. is .0885, by which if we multiply the product of the weight and fineness, and dot off 4 figures more to the right hand we shall have the value.

Thus in the last Example 54 gr. multiplied by $23\frac{3}{4}$ car. multiplied by .0885 is 113.501250, and dotting off the 6 last figures it is 113.501250 pence, or 9 s. $5\frac{1}{2}$ d. for the value, of the ducat.

The Doctrine of Proportion between Silver and Gold.

By the term proportion, in treating of this subject, we understand the true value of fine gold; that is, how many pounds weight of fine silver is given in exchange for one pound weight of fine gold.

This true value of gold is found from the nominal values which one pound weight of fine silver, and one pound weight of fine gold, are coined into; the former of which we have just now seen is 67 shillings, or 3 l. 7 s. and the latter is 50 l. 19 s. 5½ d. and as many times as 3 l. 7 s. is contained in 50 l. 19 s. 5½ so many pounds of fine silver are given for 1 lb. of fine gold, and constitute its true value, and is about 15½ times its quantity of fine silver.

But when bullion is at 5s. 6d. per oz. and gold as above, the proportion is found to be $14\frac{2}{7}$, and in general it will be found to be included between the numbers 14 and 15, amongst most of the European Kingdoms and States, but oftner nearer to the first than the last of those numbers, and few if any examples are to be met with at present of its being less than 14, or more than 15.

Example

Example 45. There are 62 shillings coined out of 1 lb. troy of standard silver, and $44\frac{1}{2}$ guineas coined out of the same lb. of standard gold, each current for 21 shillings, what is the proportion between silver and gold in this coinage?

dwt. s. dwt. s.

As $222 : 62 :: 240 : 67\frac{1}{11}$ value of 1 lb. of fine silver.

car. gu. cr. gu. s.

As $22 : 44\frac{1}{2} :: 24 : 48\frac{6}{11}$ each 21 value of 1 lb. fine gold.

And $48\frac{6}{11}$ multiplied by 21 is $1019\frac{5}{11}$ value of ditto in shillings.

s.	s.	lb. lb.	[parts of 1 lb.
As $67\frac{1}{11} : 1019\frac{5}{11} :: 1 : 15$	and	5718	in 27280
<u>37</u>	<u>11</u>		<u>12</u>
470	1124	27280)	68616(2 oz.
<u>201</u>	<u>37</u>		<u>14056</u>
2480			<u>20</u>
<u>11</u>	78498		
27280	<u>33642</u>	27280)	281120(10 dwt.
			<u>8320</u>
			<u>24</u>
	27280)	414918(15 lb.	
		<u>14211</u>	
remains	5718	27280)	199680(7 gr.
			<u>8720</u>

And the proportion is 15 lb. 2 oz. 10 dwt. 7 gr.

Instead of working by vulgar fractions as above, if we work it by decimals it will be sooner done.

$67 \frac{1}{37}$ is 67.027, and $1019 \frac{1}{17}$ is 1019.4545454.

[10 dwt. 7 gr.

And $67027)1019.4545454(15.2096$ or 15 lb. 2 oz.

349184	12	
140495		
644145	2.5152	
409024	20	
6862		
	10.3040	
	24	
	7.2960	

In like manner the proportion kept at present in bullion, may be found the price of [standard silver being at 5s. 6d. and gold 3l. 18s. and is 14.2878, or 14 lb. 3 oz. 9 dwt. 1 gr.

There is also another data besides that above to find the proportion, which is the weight, fineness and value of a piece of gold, or a piece of silver coin : instead of that of the pound weight.

Example 46. What is the proportion kept in our present coinage, a shilling weighing $92 \frac{2}{3} \frac{8}{17}$ troy grains, and a guinea $129 \frac{3}{17}$, and being current for 21 shillings ?

car. ca. gr. gr.
As 24 : 22 :: 129 $\frac{3}{4}$: 118 $\frac{5}{8}$ fine gold in a guinea.

oz. oz. gr. gr.
As 12 : 11 $\frac{1}{10}$:: 92 $\frac{2}{3}$: 85 $\frac{2}{3}$ fine silver in a shilling,
which $\times$ by 21 is 1804 $\frac{2}{3}$ fine silver in a guinea.

And 118 $\frac{5}{8}$: 1804 $\frac{2}{3}$:: 1 : 15 2 10 7

89	31
1062	1804
944	5412
58	20
10560	55944
31	89
10560	503496
31680	447552
327360	4979016(15 lb.
	1705416
	68616
	12.
327360	823392(2 oz.
	168672
	20
327360	3373440(10 dwt.
	99840
	24
	399360
	199680
327360	2396160(7 gr.
	104640

The same question is worked by decimals, as follows.

129.438 wt. guinea	92.903 wt. of a shilling
22 fine of ditto	11.1 fineness of ditto
258876	92903
258876	92903
12)2847 636	92903
2)237.303	
118.651 fine gold	12)1031.2233
in 1 guinea]	85.9352 fl. fil. in 1 shilling
	21 shil. in 1 guinea
	85.9352
	171 8704
118.6515)180.46392 (	15.20958
6181242	12
2486670	
11364000	2.51496
6853650	20
921075	
	10.29920
	24
	7.18

Although the work is more operose by vulgar than by decimal fractions, yet it has the advantage of being entirely correct, and at the same time the reasons of the operation, and any error in the conclusion, is sooner discovered this way than the other, which is the reason we have preferred it in our investigation * of the value and proportion of our silver and gold coin for 6 or 700 years.

* See the tables to our view of the silver and gold coinage.

The two divisions above by 24 and by 12 will be saved if we perform it by the following rule.
1st. multiply the weight of the silver piece of money by its fineness, and multiply the product by double the value of the gold piece, this last sum divided by the product of the weight and fineness of the gold piece, gives the answer.

The product of the weight and fineness of the silver piece above, is 1031.2233
double value gold piece is 42

$$\begin{array}{r} 20624466 \\ 41248932 \end{array}$$

The product of the wt. and value of the 2847636)43311.3786(15.296 gold piece]

If the same fineness was kept both in the silver and gold coins, that is 11 oz. in the silver and 22 car. in the gold or $10\frac{1}{2}$ oz. in the silver and 21 car. in the gold then the labour in finding the proportion would be much lessened; for in that case we must first find how many of the silver passes for one of the gold, which being multiplied into the weight of the silver, and divided by the weight of the gold, will give us the proportion required.

Example

Example 47. The Ecu in France weighs 19 dwt. or 456 gr. is current for 6 livres, and the louis d'or weighs 5 dwt. 6 gr. or 126 gr. for 24 livres, and are both the same fineness, what is the proportion.

li.	gr.
6)24(4	456 wt. of the ecu
	4 ecus in 1 louis d'or

wt. of louis d'or 126)	1824(14½ the proportion
	564
	60

Example 48. In Holland the piece of 3 guilders weighs 1 oz. 6 gr. or 486 gr. and the ryder or piece of 14 guilders weighs 6 dwt. 10 gr. or 154 gr. and are both of the same fineness, what is the proportion?

3)14(4⅔	486 weight of the 3 guilders
	4⅔

1944
162
162

wt. of a rider 154)	2268(14⅞ the proportion
	728
	112

Those countries wherein they observe a higher proportion than their neighbours, are in danger of having their silver drawn from them in exchange for gold, as is the case at present with Great Britain, and those which have a lower proportion the contrary.

T A B L E S

OF THE

Q U A N T I T Y

O F

Standard S I L V E R,

Contained in any Ingot under
the Weight of 500 Ounces;

A N D

From one Ounce to one Half-
Pennyweight in Fineness.

1 03.				Circ 5/16.			Circ 5/16.		
oz.	oz.	dwt.	gr.	oz.	dwt.	gr.	oz.	dwt.	gr.
500	45	0	21 $\frac{5}{8}$	43	18	9 $\frac{1}{8}$	42	15	20 $\frac{1}{2}$
400	36	0	17 $\frac{1}{4}$	35	2	16 $\frac{7}{8}$	34	4	16 $\frac{3}{8}$
300	27	0	13	26	7	0 $\frac{5}{8}$	25	13	12 $\frac{3}{8}$
200	18	0	8 $\frac{5}{8}$	17	11	8 $\frac{1}{2}$	17	2	8 $\frac{1}{4}$
100	9	0	4 $\frac{3}{8}$	8	15	16 $\frac{1}{4}$	8	11	4 $\frac{1}{8}$
90	8	2	3 $\frac{7}{8}$	7	18	2 $\frac{5}{8}$	7	14	1 $\frac{1}{4}$
80	7	4	3 $\frac{1}{2}$	7	0	13	6	16	22 $\frac{1}{2}$
70	6	6	3	6	2	23 $\frac{1}{2}$	5	19	19 $\frac{5}{8}$
60	5	8	2 $\frac{5}{8}$	5	5	9 $\frac{3}{4}$	5	2	16 $\frac{7}{8}$
50	4	10	2 $\frac{1}{8}$	4	7	20 $\frac{1}{8}$	4	5	14
40	3	12	1 $\frac{3}{4}$	3	10	6 $\frac{1}{2}$	3	8	11 $\frac{1}{4}$
30	2	14	1 $\frac{1}{4}$	2	12	16 $\frac{7}{8}$	2	11	8 $\frac{3}{8}$
20	1	16	0 $\frac{7}{8}$	1	15	3 $\frac{1}{4}$	1	14	5 $\frac{5}{8}$
10	0	18	0 $\frac{3}{8}$	0	17	13 $\frac{5}{8}$	0	17	2 $\frac{3}{4}$
9	0	16	5 $\frac{1}{8}$	0	15	19 $\frac{1}{2}$	0	15	9 $\frac{3}{4}$
8	0	14	10	0	14	1 $\frac{1}{4}$	0	13	16 $\frac{5}{8}$
7	0	12	14 $\frac{3}{4}$	0	12	7 $\frac{1}{8}$	0	11	23 $\frac{5}{8}$
6	0	10	19 $\frac{1}{2}$	0	10	13	0	10	6 $\frac{1}{2}$
5	0	9	0 $\frac{1}{4}$	0	8	18 $\frac{3}{4}$	0	8	13 $\frac{3}{8}$
4	0	7	5	0	7	0 $\frac{5}{8}$	0	6	20 $\frac{1}{8}$
3	0	5	9 $\frac{3}{4}$	0	5	6 $\frac{1}{2}$	0	5	3 $\frac{1}{4}$
2	0	3	14 $\frac{1}{2}$	0	3	12 $\frac{3}{8}$	0	3	10 $\frac{1}{8}$
1 oz.	0	1	19 $\frac{1}{4}$	0	1	18 $\frac{1}{8}$	0	1	17 $\frac{1}{8}$
19	0	1	17 $\frac{1}{8}$	0	1	16 $\frac{1}{8}$	0	1	15 $\frac{1}{8}$
17	0	1	12 $\frac{3}{4}$	0	1	11 $\frac{7}{8}$	0	1	10 $\frac{7}{8}$
13	0	1	4 $\frac{1}{8}$	0	1	3 $\frac{3}{8}$	0	1	2 $\frac{3}{4}$
11	0	0	23 $\frac{3}{4}$	0	0	23	0	0	22 $\frac{5}{8}$
10	0	0	21 $\frac{5}{8}$	0	0	21	0	0	20 $\frac{1}{2}$
9	0	0	19 $\frac{1}{2}$	0	0	19	0	0	18 $\frac{1}{2}$
8	0	0	17 $\frac{1}{4}$	0	0	16 $\frac{7}{8}$	0	0	16 $\frac{3}{8}$
7	0	0	15 $\frac{1}{8}$	0	0	14 $\frac{3}{4}$	0	0	14 $\frac{3}{8}$
6	0	0	13	0	0	12 $\frac{5}{8}$	0	0	12 $\frac{3}{8}$
5	0	0	10 $\frac{3}{4}$	0	0	10 $\frac{1}{2}$	0	0	10 $\frac{1}{4}$
4	0	0	8 $\frac{5}{8}$	0	0	8 $\frac{3}{8}$	0	0	8 $\frac{1}{4}$
3	0	0	6 $\frac{1}{2}$	0	0	6 $\frac{3}{8}$	0	0	6 $\frac{1}{8}$
2	0	0	4 $\frac{3}{8}$	0	0	4 $\frac{1}{4}$	0	0	4 $\frac{1}{8}$
1 dwt.	0	0	2 $\frac{1}{8}$	0	0	2 $\frac{1}{8}$	0	0	2
$\frac{1}{2}$	0	0	1 $\frac{1}{8}$	0	0	1	0	0	1

Zviii th d th M th				Zviii th d th M th				Zviii th d th M th			
oz.	oz.	dwt	gr.	oz.	dwt	gr.		oz.	dwt	gr.	
500	41	13	8	40	10	19 $\frac{1}{2}$		39	8	6 $\frac{7}{8}$	
400	33	6	16	32	8	15 $\frac{5}{8}$		31	10	15 $\frac{1}{8}$	
300	25	0	0	24	6	11 $\frac{5}{8}$		23	12	23 $\frac{3}{8}$	
200	16	13	8	16	4	7 $\frac{3}{4}$		15	15	7 $\frac{5}{8}$	
100	8	6	16	8	2	3 $\frac{7}{8}$		7	17	15 $\frac{3}{4}$	
90	7	10	0	7	5	22 $\frac{3}{4}$		7	1	21 $\frac{3}{8}$	
80	6	13	8	6	9	17 $\frac{1}{2}$		6	6	3	
70	5	16	16	5	13	12 $\frac{1}{4}$		5	10	8 $\frac{5}{8}$	
60	5	0	0	4	17	7 $\frac{1}{8}$		4	14	14 $\frac{1}{4}$	
50	4	3	8	4	1	2		3	18	19 $\frac{7}{8}$	
40	3	6	16	3	4	20 $\frac{3}{4}$		3	3	1 $\frac{1}{2}$	
30	2	10	0	2	8	15 $\frac{5}{8}$		2	7	7 $\frac{1}{8}$	
20	1	13	8	1	12	10 $\frac{3}{8}$		1	11	12 $\frac{3}{4}$	
10	0	16	16	0	16	5 $\frac{1}{8}$		0	15	18 $\frac{3}{8}$	
9	0	15	0	0	14	14 $\frac{1}{4}$		0	14	4 $\frac{1}{2}$	
8	0	13	8	0	12	23 $\frac{3}{8}$		0	12	14 $\frac{5}{8}$	
7	0	11	16	0	11	8 $\frac{3}{8}$		0	11	0 $\frac{3}{4}$	
6	0	10	0	0	9	17 $\frac{1}{2}$		0	9	11 $\frac{1}{8}$	
5	0	8	8	0	8	2 $\frac{5}{8}$		0	7	21 $\frac{1}{4}$	
4	0	6	16	0	6	11 $\frac{1}{8}$		0	6	7 $\frac{3}{8}$	
3	0	5	0	0	4	20 $\frac{3}{4}$		0	4	17 $\frac{1}{2}$	
2	0	3	8	0	3	5 $\frac{7}{8}$		0	3	3 $\frac{5}{8}$	
1 oz.	0	1	16	0	1	14 $\frac{7}{8}$		0	1	13 $\frac{7}{8}$	
19	0	1	14	0	1	13		0	1	12	
17	0	1	10	0	1	9 $\frac{1}{8}$		0	1	8 $\frac{1}{4}$	
13	0	1	2	0	1	1 $\frac{1}{4}$		0	1	0 $\frac{5}{8}$	
11	0	0	22	0	0	21 $\frac{3}{8}$		0	0	20 $\frac{7}{8}$	
10	0	0	20	0	0	19 $\frac{1}{2}$		0	0	18 $\frac{7}{8}$	
9	0	0	18	0	0	17 $\frac{1}{2}$		0	0	17	
8	0	0	16	0	0	15 $\frac{5}{8}$		0	0	15 $\frac{1}{8}$	
7	0	0	14	0	0	13 $\frac{5}{8}$		0	0	13 $\frac{1}{4}$	
6	0	0	12	0	0	11 $\frac{5}{8}$		0	0	11 $\frac{3}{8}$	
5	0	0	10	0	0	9 $\frac{3}{4}$		0	0	9 $\frac{1}{2}$	
4	0	0	8	0	0	7 $\frac{3}{4}$		0	0	7 $\frac{5}{8}$	
3	0	0	6	0	0	5 $\frac{7}{8}$		0	0	5 $\frac{5}{8}$	
2	0	0	4	0	0	3 $\frac{7}{8}$		0	0	3 $\frac{3}{4}$	
1 dwt.	0	0	2	0	0	2		0	0	1 $\frac{7}{8}$	
$\frac{1}{2}$	0	0	1	0	0	1		0	0	1	

Tbi 5 th Mo.				Tbi 6 th Mo.				Tbi 7 th Mo.			
oz.	oz.	dwt	gr.	oz.	dwt	gr.		oz.	dwt.	gr.	
500	38	15	18 $\frac{3}{8}$	37	3	5 $\frac{7}{8}$		36	0	17 $\frac{3}{8}$	
400	30	12	14 $\frac{3}{4}$	29	14	14 $\frac{1}{4}$		28	16	13 $\frac{7}{8}$	
300	22	19	11	22	5	22 $\frac{3}{4}$		21	12	10 $\frac{3}{8}$	
200	15	6	7 $\frac{3}{8}$	14	17	7 $\frac{1}{8}$		14	8	7	
100	7	13	3 $\frac{5}{8}$	7	8	15 $\frac{3}{8}$		7	4	3 $\frac{1}{2}$	
90	6	17	20 $\frac{1}{8}$	6	13	18 $\frac{3}{4}$		6	9	17 $\frac{1}{2}$	
80	6	2	12 $\frac{1}{2}$	5	18	22		5	15	7 $\frac{5}{8}$	
70	5	7	5	5	4	1 $\frac{3}{4}$		5	0	21 $\frac{3}{8}$	
60	4	11	21 $\frac{3}{8}$	4	9	4 $\frac{1}{2}$		4	6	11 $\frac{3}{8}$	
50	3	16	13 $\frac{1}{8}$	3	14	7 $\frac{3}{4}$		3	12	1 $\frac{3}{4}$	
40	3	1	6 $\frac{1}{4}$	2	19	11		2	17	15 $\frac{3}{4}$	
30	2	5	22 $\frac{3}{4}$	2	4	14 $\frac{1}{4}$		2	3	5 $\frac{7}{8}$	
20	1	10	15 $\frac{5}{8}$	1	9	17 $\frac{1}{2}$		1	8	19 $\frac{7}{8}$	
10	0	15	7 $\frac{5}{8}$	0	13	20 $\frac{3}{4}$		0	14	10	
9	0	13	18 $\frac{3}{8}$	0	11	9 $\frac{5}{8}$		0	12	23 $\frac{3}{4}$	
8	0	12	6	0	10	21 $\frac{3}{8}$		0	11	12 $\frac{3}{4}$	
7	0	10	17 $\frac{1}{4}$	0	8	9 $\frac{3}{4}$		0	10	2 $\frac{1}{8}$	
6	0	9	4 $\frac{1}{2}$	0	7	22		0	8	15 $\frac{1}{2}$	
5	0	7	15 $\frac{3}{4}$	0	5	10 $\frac{3}{8}$		0	7	5	
4	0	6	3	0	4	22 $\frac{3}{4}$		0	5	18 $\frac{3}{8}$	
3	0	4	14 $\frac{1}{4}$	0	2	11		0	4	7 $\frac{3}{4}$	
2	0	3	1 $\frac{1}{2}$	0	1	23 $\frac{1}{8}$		0	2	21 $\frac{3}{8}$	
I. oz.	0	1	12 $\frac{3}{4}$	0	1	11 $\frac{1}{8}$		0	1	10 $\frac{5}{8}$	
19	0	1	10 $\frac{7}{8}$	0	1	9 $\frac{1}{4}$		0	1	8 $\frac{7}{8}$	
17	0	1	7 $\frac{1}{4}$	0	0	5 $\frac{3}{4}$		0	1	5 $\frac{3}{8}$	
13	0	0	23 $\frac{7}{8}$	0	0	22 $\frac{5}{4}$		0	0	22 $\frac{1}{2}$	
11	0	0	20 $\frac{1}{4}$	0	0	19 $\frac{1}{4}$		0	0	19 $\frac{1}{8}$	
10	0	0	18 $\frac{3}{8}$	0	0	17 $\frac{1}{2}$		0	0	17 $\frac{1}{4}$	
9	0	0	16 $\frac{1}{2}$	0	0	15 $\frac{3}{4}$		0	0	15 $\frac{5}{8}$	
8	0	0	14 $\frac{2}{4}$	0	0	14		0	0	13 $\frac{7}{8}$	
7	0	0	12 $\frac{7}{8}$	0	0	12 $\frac{1}{4}$		0	0	12 $\frac{1}{8}$	
6	0	0	11	0	0	10 $\frac{1}{2}$		0	0	10 $\frac{1}{2}$	
5	0	0	9 $\frac{1}{4}$	0	0	8 $\frac{3}{4}$		0	0	8 $\frac{7}{8}$	
4	0	0	7 $\frac{3}{8}$	0	0	7		0	0	7	
3	0	0	5 $\frac{1}{2}$	0	0	5 $\frac{1}{4}$		0	0	5 $\frac{1}{4}$	
2	0	0	3 $\frac{5}{8}$	0	0	3 $\frac{1}{2}$		0	0	3 $\frac{1}{2}$	
I dwt.	0	0	1 $\frac{7}{8}$	0	0	1 $\frac{3}{4}$		0	0	1 $\frac{7}{8}$	
$\frac{1}{2}$	0	0	1	0	0	0 $\frac{7}{8}$		0	0	0 $\frac{7}{8}$	

Cv dms. ob.				Cv dms.				Ciii dms. ob.			
oz.	oz.	dwt	gr.	oz.	dwt	gr.		oz.	dwt	gr.	
500	34	18	$4\frac{3}{4}$	33	15	$16\frac{1}{4}$		32	13	$3\frac{5}{8}$	
400	27	18	$13\frac{3}{8}$	27	0	13		26	2	$12\frac{1}{2}$	
300	20	18	22	20	5	$9\frac{3}{4}$		19	11	$21\frac{3}{8}$	
200	13	19	$6\frac{3}{4}$	13	10	$6\frac{1}{2}$		13	1	$6\frac{1}{4}$	
100	6	19	$15\frac{3}{8}$	6	15	$3\frac{1}{4}$		6	10	$15\frac{5}{8}$	
90	6	5	16	6	1	$14\frac{7}{8}$		5	17	$18\frac{3}{8}$	
80	5	11	$17\frac{1}{8}$	5	8	$2\frac{5}{8}$		5	4	12	
70	4	17	18	4	14	$14\frac{1}{4}$		4	11	$10\frac{5}{8}$	
60	4	3	$18\frac{7}{8}$	4	1	2		3	18	19	
50	3	9	$19\frac{5}{8}$	3	7	$13\frac{5}{8}$		3	5	$7\frac{5}{8}$	
40	2	15	$20\frac{1}{2}$	2	14	$1\frac{1}{4}$		2	12	6	
30	2	1	$21\frac{3}{8}$	2	0	13		1	19	$4\frac{1}{2}$	
20	1	7	$22\frac{1}{4}$	1	7	$0\frac{5}{8}$		1	6	3	
10	0	13	$23\frac{1}{8}$	0	13	$12\frac{3}{8}$		0	13	$1\frac{1}{2}$	
9	0	12	$13\frac{5}{8}$	0	12	$3\frac{7}{8}$		0	11	$18\frac{1}{8}$	
8	0	11	$4\frac{1}{8}$	0	10	$19\frac{3}{8}$		0	10	$5\frac{3}{8}$	
7	0	9	$18\frac{1}{2}$	0	9	11		0	8	$22\frac{3}{4}$	
6	0	8	$9\frac{1}{8}$	0	8	$2\frac{1}{2}$		0	7	16	
5	0	6	$23\frac{5}{8}$	0	6	$18\frac{1}{8}$		0	6	$9\frac{3}{8}$	
4	0	5	14	0	5	$9\frac{3}{4}$		0	5	$2\frac{3}{4}$	
3	0	4	$4\frac{5}{8}$	0	4	$1\frac{1}{4}$		0	3	20	
2	0	2	19	0	2	$16\frac{7}{8}$		0	2	$13\frac{3}{8}$	
1 oz.	0	1	$9\frac{1}{2}$	0	1	$8\frac{3}{8}$		0	1	$6\frac{5}{8}$	
19	0	1	$7\frac{7}{8}$	0	1	$6\frac{3}{4}$		0	1	$5\frac{1}{8}$	
17	0	1	$4\frac{1}{2}$	0	1	$3\frac{5}{8}$		0	1	$2\frac{1}{8}$	
13	0	0	$21\frac{3}{4}$	0	0	21		0	0	$19\frac{7}{8}$	
11	0	0	$18\frac{3}{8}$	0	0	$17\frac{7}{8}$		0	0	$16\frac{7}{8}$	
10	0	0	$16\frac{3}{4}$	0	0	$1\frac{1}{4}$		0	0	$15\frac{3}{8}$	
9	0	0	$15\frac{1}{8}$	0	0	$14\frac{5}{8}$		0	0	$13\frac{7}{8}$	
8	0	0	$13\frac{3}{8}$	0	0	13		0	0	$12\frac{1}{4}$	
7	0	0	$11\frac{3}{4}$	0	0	$11\frac{3}{8}$		0	0	$10\frac{3}{4}$	
6	0	0	10	0	0	$9\frac{3}{4}$		0	0	$9\frac{1}{4}$	
5	0	0	$8\frac{3}{8}$	0	0	$8\frac{1}{8}$		0	0	$7\frac{5}{8}$	
4	0	0	$6\frac{3}{4}$	0	0	$6\frac{1}{2}$		0	0	$6\frac{1}{8}$	
3	0	0	5	0	0	$4\frac{7}{8}$		0	0	$4\frac{5}{8}$	
2	0	0	$3\frac{3}{8}$	0	0	$3\frac{1}{4}$		0	0	$3\frac{1}{8}$	
1 dwt.	0	0	$1\frac{5}{8}$	0	0	$1\frac{5}{8}$		0	0	$1\frac{1}{2}$	
$\frac{1}{2}$	0	0	$0\frac{7}{8}$	0	0	$0\frac{7}{8}$		0	0	$0\frac{3}{4}$	

℥iiij ḡ℥.				℥iiij ḡ℥.				℥iiij ḡ℥.			
oz.	oz.	dwt	gr.	oz.	dwt	gr.		oz.	dwt	gr.	
500	31	10	15 $\frac{1}{4}$	30	8	2 $\frac{5}{8}$		29	5	14	
400	25	4	12 $\frac{1}{8}$	24	6	11 $\frac{5}{8}$		23	8	4 $\frac{3}{4}$	
300	18	18	9 $\frac{1}{8}$	18	4	20 $\frac{3}{4}$		17	11	8 $\frac{1}{2}$	
200	12	12	6	12	3	5 $\frac{7}{8}$		11	14	5 $\frac{5}{8}$	
100	6	6	3	6	1	14 $\frac{7}{8}$		5	17	2 $\frac{7}{8}$	
90	5	13	12 $\frac{3}{8}$	5	9	11		5	5	9 $\frac{3}{4}$	
80	5	0	21 $\frac{5}{8}$	4	17	7 $\frac{7}{8}$		4	13	16 $\frac{5}{8}$	
70	4	8	6 $\frac{7}{8}$	4	5	3 $\frac{5}{8}$		4	1	23 $\frac{5}{8}$	
60	3	15	16 $\frac{1}{4}$	3	12	23 $\frac{3}{8}$		3	10	6 $\frac{1}{2}$	
50	3	3	1 $\frac{1}{2}$	3	0	19 $\frac{1}{2}$		2	18	13 $\frac{3}{8}$	
40	2	10	10 $\frac{3}{8}$	2	8	16		2	6	20 $\frac{3}{8}$	
30	1	17	20 $\frac{1}{4}$	1	16	11 $\frac{5}{8}$		1	15	3 $\frac{1}{4}$	
20	1	5	5 $\frac{3}{8}$	1	4	8		1	3	10 $\frac{1}{8}$	
10	0	12	14 $\frac{1}{4}$	0	12	4		0	11	17 $\frac{1}{8}$	
9	0	11	8 $\frac{1}{2}$	0	10	20 $\frac{1}{2}$		0	10	13	
8	0	10	2 $\frac{1}{8}$	0	9	15 $\frac{5}{8}$		0	9	8 $\frac{7}{8}$	
7	0	8	19 $\frac{7}{8}$	0	8	10 $\frac{5}{8}$		0	8	4 $\frac{3}{4}$	
6	0	7	13 $\frac{5}{8}$	0	7	7 $\frac{3}{8}$		0	7	0 $\frac{5}{8}$	
5	0	6	7 $\frac{3}{8}$	0	6	2		0	5	20 $\frac{1}{2}$	
4	0	5	1 $\frac{1}{8}$	0	4	20 $\frac{3}{4}$		0	4	16 $\frac{3}{8}$	
3	0	3	18 $\frac{7}{8}$	0	3	15 $\frac{5}{8}$		0	3	12 $\frac{3}{8}$	
2	0	2	12 $\frac{1}{2}$	0	2	10 $\frac{3}{8}$		0	2	8 $\frac{1}{4}$	
1 oz.	0	1	6 $\frac{1}{4}$	0	1	5 $\frac{1}{4}$		0	1	4 $\frac{1}{8}$	
19	0	1	4 $\frac{3}{4}$	0	1	3 $\frac{1}{2}$		0	1	2 $\frac{3}{4}$	
17	0	1	1 $\frac{3}{4}$	0	1	0 $\frac{3}{8}$		0	0	23 $\frac{7}{8}$	
13	0	0	19 $\frac{5}{8}$	0	0	18 $\frac{3}{4}$		0	0	18 $\frac{1}{4}$	
11	0	0	16 $\frac{5}{8}$	0	0	15 $\frac{7}{8}$		0	0	15 $\frac{1}{2}$	
10	0	0	15 $\frac{1}{8}$	0	0	14 $\frac{1}{2}$		0	0	14	
9	0	0	13 $\frac{5}{8}$	0	0	13		0	0	12 $\frac{5}{8}$	
8	0	0	12 $\frac{1}{2}$	0	0	11 $\frac{5}{8}$		0	0	11 $\frac{1}{4}$	
7	0	0	10 $\frac{5}{8}$	0	0	10 $\frac{1}{8}$		0	0	9 $\frac{3}{8}$	
6	0	0	9 $\frac{1}{8}$	0	0	8 $\frac{3}{4}$		0	0	8 $\frac{3}{8}$	
5	0	0	7 $\frac{5}{8}$	0	0	7 $\frac{1}{4}$		0	0	7	
4	0	0	6	0	0	5 $\frac{3}{4}$		0	0	5 $\frac{5}{8}$	
3	0	0	4 $\frac{1}{2}$	0	0	4 $\frac{3}{8}$		0	0	4 $\frac{1}{4}$	
2	0	0	3	0	0	2 $\frac{7}{8}$		0	0	2 $\frac{3}{4}$	
1 dwt.	0	0	1 $\frac{1}{2}$	0	0	1 $\frac{1}{2}$		0	0	1 $\frac{3}{8}$	
$\frac{1}{2}$	0	0	0 $\frac{1}{4}$	0	0	0 $\frac{3}{4}$		0	0	0 $\frac{3}{4}$	

2ij 2/16 28				2ij 2/16.				2i 2/16 28.			
oz.	oz.	dwt.	gr.	oz.	dwt.	gr.		oz.	dwt.	gr.	
500	28	3	$1\frac{1}{2}$	27	0	13		25	18	$0\frac{3}{8}$	
400	22	10	$10\frac{3}{4}$	21	12	$10\frac{3}{8}$		20	14	10	
300	16	17	$20\frac{1}{8}$	16	4	$7\frac{3}{4}$		15	10	$19\frac{1}{2}$	
200	11	5	$5\frac{3}{8}$	10	16	$5\frac{1}{4}$		10	7	5	
100	5	12	$14\frac{1}{4}$	5	8	$2\frac{5}{8}$		5	3	$14\frac{1}{2}$	
90	5	1	$8\frac{1}{2}$	4	17	$7\frac{1}{8}$		4	13	$5\frac{7}{8}$	
80	4	10	$2\frac{1}{8}$	4	6	$11\frac{5}{8}$		4	2	$21\frac{1}{4}$	
70	3	18	20	3	15	$16\frac{1}{4}$		3	12	$12\frac{1}{2}$	
60	3	7	$13\frac{7}{8}$	3	4	$20\frac{3}{4}$		3	2	$3\frac{7}{8}$	
50	2	16	$7\frac{3}{8}$	2	14	$1\frac{1}{4}$		2	11	$19\frac{1}{4}$	
40	2	5	$1\frac{1}{8}$	2	3	$5\frac{7}{8}$		2	1	$10\frac{5}{8}$	
30	1	13	$18\frac{7}{8}$	1	12	$10\frac{3}{8}$		1	11	2	
20	1	2	$12\frac{1}{2}$	1	1	$14\frac{7}{8}$		1	0	$17\frac{1}{4}$	
10	0	11	$6\frac{1}{4}$	0	10	$19\frac{1}{2}$		0	10	$8\frac{5}{8}$	
9	0	10	$3\frac{1}{4}$	0	9	$17\frac{1}{2}$		0	9	$7\frac{3}{4}$	
8	0	9	$0\frac{1}{4}$	0	8	$15\frac{5}{8}$		0	8	$6\frac{7}{8}$	
7	0	7	$21\frac{1}{8}$	0	7	$13\frac{5}{8}$		0	7	6	
6	0	6	$18\frac{1}{8}$	0	6	$11\frac{5}{8}$		0	6	$5\frac{1}{4}$	
5	0	5	$15\frac{1}{8}$	0	5	$9\frac{3}{4}$		0	5	$4\frac{3}{8}$	
4	0	4	$12\frac{1}{8}$	0	4	$7\frac{3}{4}$		0	4	$3\frac{1}{2}$	
3	0	3	$9\frac{1}{8}$	0	3	$5\frac{7}{8}$		0	3	$2\frac{5}{8}$	
2	0	2	6	0	2	$3\frac{7}{8}$		0	2	$1\frac{3}{4}$	
1 oz.	0	1	3	0	1	2		0	1	$0\frac{7}{8}$	
19	0	1	$1\frac{5}{8}$	0	1	$0\frac{5}{8}$		0	0	$23\frac{5}{8}$	
17	0	0	23	0	0	22		0	0	$21\frac{1}{8}$	
13	0	0	$17\frac{5}{8}$	0	0	$16\frac{7}{8}$		0	0	$16\frac{1}{8}$	
11	0	0	$14\frac{7}{8}$	0	0	$14\frac{1}{4}$		0	0	$13\frac{5}{8}$	
10	0	0	$13\frac{1}{2}$	0	0	13		0	0	$12\frac{5}{8}$	
9	0	0	$12\frac{1}{8}$	0	0	$11\frac{5}{8}$		0	0	$11\frac{1}{4}$	
8	0	0	$10\frac{3}{4}$	0	0	$10\frac{3}{8}$		0	0	10	
7	0	0	$9\frac{1}{2}$	0	0	$9\frac{1}{8}$		0	0	$8\frac{3}{4}$	
6	0	0	$8\frac{1}{8}$	0	0	$7\frac{3}{4}$		0	0	$7\frac{1}{2}$	
5	0	0	$6\frac{3}{4}$	0	0	$6\frac{1}{2}$		0	0	$6\frac{1}{4}$	
4	0	0	$5\frac{3}{8}$	0	0	$5\frac{1}{4}$		0	0	5	
3	0	0	4	0	0	$3\frac{7}{8}$		0	0	$3\frac{3}{4}$	
2	0	0	$2\frac{3}{4}$	0	0	$2\frac{5}{8}$		0	0	$2\frac{1}{2}$	
1 dwt.	0	0	$1\frac{3}{8}$	0	0	$1\frac{1}{4}$		0	0	$1\frac{1}{4}$	
$\frac{1}{2}$	0	0	$0\frac{3}{4}$	0	0	$0\frac{5}{8}$		0	0	$0\frac{5}{8}$	

C 1 2 3 4				C 2 3 4 5				C 3 4 5 6			
oz.	oz.	dwt	gr.	oz.	dwt	gr.		oz.	dwt	gr.	
500	24	15	11 $\frac{7}{8}$	23	12	23 $\frac{3}{8}$		22	10	10 $\frac{3}{4}$	
400	19	16	9 $\frac{1}{2}$	18	18	9 $\frac{1}{8}$		18	0	8 $\frac{5}{8}$	
300	14	17	7 $\frac{1}{8}$	14	3	18 $\frac{3}{4}$		13	10	6 $\frac{1}{2}$	
200	9	18	4 $\frac{3}{4}$	9	9	4 $\frac{1}{2}$		9	0	4 $\frac{3}{8}$	
100	4	19	2 $\frac{3}{8}$	4	14	14 $\frac{1}{4}$		4	10	2 $\frac{1}{8}$	
90	4	9	4 $\frac{1}{2}$	4	4	3 $\frac{1}{4}$		4	1	2 $\frac{3}{4}$	
80	3	19	6 $\frac{3}{4}$	3	15	16 $\frac{1}{4}$		3	12	1 $\frac{1}{4}$	
70	3	9	8 $\frac{7}{8}$	3	5	5 $\frac{1}{4}$		3	3	1 $\frac{1}{2}$	
60	2	19	11	2	16	18 $\frac{1}{8}$		2	14	1 $\frac{1}{4}$	
50	2	9	13 $\frac{1}{4}$	2	7	7 $\frac{1}{8}$		2	5	1 $\frac{1}{8}$	
40	1	19	15 $\frac{3}{8}$	1	17	20 $\frac{1}{8}$		1	16	0 $\frac{7}{8}$	
30	1	9	17 $\frac{1}{2}$	1	8	9 $\frac{1}{8}$		1	7	0 $\frac{5}{8}$	
20	0	19	19 $\frac{5}{8}$	0	18	22		0	18	0 $\frac{3}{8}$	
10	0	9	21 $\frac{7}{8}$	0	9	11		0	9	0 $\frac{1}{4}$	
9	0	8	22	0	8	12 $\frac{3}{8}$		0	8	2 $\frac{5}{8}$	
8	0	7	22 $\frac{1}{4}$	0	7	13 $\frac{5}{8}$		0	7	5 $\frac{3}{8}$	
7	0	6	22 $\frac{1}{2}$	0	6	14 $\frac{7}{8}$		0	6	7 $\frac{3}{8}$	
6	0	5	22 $\frac{5}{8}$	0	5	16 $\frac{1}{4}$		0	5	9 $\frac{3}{4}$	
5	0	4	22 $\frac{7}{8}$	0	4	17 $\frac{1}{2}$		0	4	12 $\frac{1}{8}$	
4	0	3	23 $\frac{1}{8}$	0	3	18 $\frac{3}{4}$		0	3	14 $\frac{1}{2}$	
3	0	2	23 $\frac{3}{8}$	0	2	20 $\frac{1}{8}$		0	2	16 $\frac{1}{8}$	
2	0	1	23 $\frac{5}{8}$	0	1	21 $\frac{3}{8}$		0	1	19 $\frac{1}{4}$	
I oz.	0	0	23 $\frac{7}{8}$	0	0	22 $\frac{3}{4}$		0	0	21 $\frac{5}{8}$	
19	0	0	22 $\frac{1}{4}$	0	0	21 $\frac{5}{8}$		0	0	20 $\frac{1}{2}$	
17	0	0	20 $\frac{1}{4}$	0	0	19 $\frac{3}{4}$		0	0	8 $\frac{3}{8}$	
13	0	0	15 $\frac{3}{8}$	0	0	14 $\frac{3}{4}$		0	0	14 $\frac{7}{8}$	
11	0	0	13 $\frac{1}{8}$	0	0	12 $\frac{1}{2}$		0	0	11 $\frac{3}{4}$	
10	0	0	11 $\frac{7}{8}$	0	0	11 $\frac{3}{8}$		0	0	10 $\frac{3}{4}$	
9	0	0	10 $\frac{7}{8}$	0	0	10 $\frac{1}{4}$		0	0	9 $\frac{5}{8}$	
8	0	0	9 $\frac{1}{2}$	0	0	9 $\frac{1}{8}$		0	0	8 $\frac{5}{8}$	
7	0	0	8 $\frac{1}{4}$	0	0	8		0	0	7 $\frac{1}{8}$	
6	0	0	7 $\frac{1}{8}$	0	0	6 $\frac{3}{4}$		0	0	6 $\frac{1}{2}$	
5	0	0	6	0	0	5 $\frac{5}{8}$		0	0	5 $\frac{3}{8}$	
4	0	0	4 $\frac{3}{4}$	0	0	4 $\frac{1}{2}$		0	0	4 $\frac{3}{8}$	
3	0	0	3 $\frac{5}{8}$	0	0	3 $\frac{3}{8}$		0	0	3 $\frac{1}{4}$	
2	0	0	2 $\frac{3}{8}$	0	0	2 $\frac{1}{4}$		0	0	2 $\frac{1}{8}$	
I dwt.	0	0	1 $\frac{1}{4}$	0	0	1 $\frac{1}{8}$		0	0	1 $\frac{1}{8}$	
$\frac{1}{2}$	0	0	0 $\frac{5}{8}$	0	0	0 $\frac{5}{8}$		0	0	0 $\frac{5}{8}$	

12 dms. 6.				12 dms.				vii dms. 6.			
oz.	oz.	dwt	gr.	oz.	dwt	g		oz.	dwt	gr.	
500	2	7	22 $\frac{1}{4}$	20	5	9 $\frac{3}{4}$		19	2	21 $\frac{1}{4}$	
400	7	2	8 $\frac{1}{4}$	16	4	7 $\frac{1}{4}$		15	6	7 $\frac{3}{8}$	
300	12	16	18 $\frac{1}{8}$	12	3	5 $\frac{7}{8}$		11	9	17 $\frac{1}{2}$	
200	8	11	4 $\frac{1}{4}$	8	2	3 $\frac{7}{8}$		7	13	3 $\frac{5}{8}$	
100	4	5	14	4	1	2		3	16	13 $\frac{7}{8}$	
90	3	17	0 $\frac{5}{8}$	3	12	23 $\frac{3}{8}$		3	8	22	
80	3	8	11 $\frac{1}{4}$	3	4	20 $\frac{3}{4}$		3	1	6 $\frac{1}{4}$	
70	2	19	21 $\frac{7}{8}$	2	16	18 $\frac{1}{8}$		2	13	14 $\frac{1}{2}$	
60	2	11	8 $\frac{3}{4}$	2	8	15 $\frac{5}{8}$		2	5	22 $\frac{3}{4}$	
50	2	2	19	2	0	13		1	18	6 $\frac{7}{8}$	
40	1	14	5 $\frac{5}{8}$	1	12	10 $\frac{3}{8}$		1	10	15 $\frac{1}{8}$	
30	1	5	16 $\frac{1}{4}$	1	4	7 $\frac{3}{4}$		1	2	23 $\frac{3}{8}$	
20	0	17	2 $\frac{3}{4}$	0	16	5 $\frac{1}{4}$		0	15	7 $\frac{5}{8}$	
10	0	8	13 $\frac{3}{8}$	0	8	2 $\frac{5}{8}$		0	7	15 $\frac{3}{4}$	
9	0	7	16 $\frac{7}{8}$	0	7	7 $\frac{1}{8}$		0	6	21 $\frac{3}{8}$	
8	0	6	20 $\frac{3}{4}$	0	6	11 $\frac{5}{8}$		0	6	3	
7	0	5	23 $\frac{3}{4}$	0	5	16 $\frac{1}{4}$		0	5	8 $\frac{5}{8}$	
6	0	5	3 $\frac{1}{4}$	0	4	20 $\frac{3}{4}$		0	4	14 $\frac{1}{4}$	
5	0	4	6 $\frac{3}{4}$	0	4	1 $\frac{1}{4}$		0	3	19 $\frac{7}{8}$	
4	0	3	10 $\frac{5}{8}$	0	3	5 $\frac{7}{8}$		0	3	1 $\frac{1}{2}$	
3	0	2	13 $\frac{5}{8}$	0	2	10 $\frac{3}{8}$		0	2	7 $\frac{1}{8}$	
2	0	1	17 $\frac{7}{8}$	0	1	14 $\frac{7}{8}$		0	1	12 $\frac{3}{4}$	
1 oz.	0	0	20 $\frac{1}{2}$	0	0	19 $\frac{1}{2}$		0	0	18 $\frac{3}{8}$	
19	0	0	19 $\frac{1}{2}$	0	0	18 $\frac{1}{2}$		0	0	17 $\frac{1}{2}$	
17	0	0	17 $\frac{1}{2}$	0	0	16 $\frac{1}{2}$		0	0	15 $\frac{5}{8}$	
13	0	0	13 $\frac{3}{8}$	0	0	12 $\frac{5}{8}$		0	0	12	
11	0	0	11 $\frac{1}{4}$	0	0	10 $\frac{1}{4}$		0	0	10 $\frac{1}{8}$	
10	0	0	10 $\frac{1}{4}$	0	0	9 $\frac{3}{4}$		0	0	9 $\frac{1}{4}$	
9	0	0	9 $\frac{1}{4}$	0	0	8 $\frac{3}{4}$		0	0	8 $\frac{1}{4}$	
8	0	0	8 $\frac{1}{4}$	0	0	7 $\frac{3}{4}$		0	0	7 $\frac{3}{8}$	
7	0	0	7 $\frac{1}{4}$	0	0	6 $\frac{3}{4}$		0	0	6 $\frac{3}{8}$	
6	0	0	6 $\frac{1}{8}$	0	0	5 $\frac{7}{8}$		0	0	5 $\frac{1}{2}$	
5	0	0	5 $\frac{1}{8}$	0	0	4 $\frac{7}{8}$		0	0	4 $\frac{5}{8}$	
4	0	0	4 $\frac{1}{8}$	0	0	3 $\frac{7}{8}$		0	0	3 $\frac{3}{8}$	
3	0	0	3 $\frac{1}{8}$	0	0	2 $\frac{7}{8}$		0	0	2 $\frac{3}{4}$	
2	0	0	2	0	0	2		0	0	1 $\frac{7}{8}$	
1 dwt.	0	0	1	0	0	1		0	0	0 $\frac{7}{8}$	
$\frac{1}{2}$	0	0	$\frac{1}{2}$	0	0	$\frac{1}{2}$		0	0	0 $\frac{1}{2}$	

viiij Δ Δ Δ				viij Δ Δ Δ Δ				viij Δ Δ Δ			
oz.	oz.	dwt	gr.	oz.	dwt	gr.		oz.	dwt	gr.	
500	18	0	$8\frac{5}{8}$	16	17	$20\frac{1}{8}$		15	15	$7\frac{5}{8}$	
400	14	8	$6\frac{7}{8}$	13	10	$6\frac{1}{2}$		12	12	6	
300	10	16	$5\frac{1}{4}$	10	2	$16\frac{7}{8}$		9	9	$4\frac{1}{2}$	
200	7	4	$3\frac{1}{2}$	6	15	$3\frac{1}{4}$		6	6	3	
100	3	12	$1\frac{3}{4}$	3	7	$13\frac{1}{4}$		3	3	$1\frac{1}{2}$	
90	3	4	$20\frac{1}{2}$	3	0	$19\frac{1}{2}$		2	16	$18\frac{1}{8}$	
80	2	17	$15\frac{3}{4}$	2	14	$1\frac{1}{4}$		2	10	$10\frac{3}{4}$	
70	2	10	$10\frac{3}{4}$	2	7	$7\frac{1}{8}$		2	4	$3\frac{1}{2}$	
60	2	3	$5\frac{7}{8}$	2	0	13		1	17	$20\frac{1}{8}$	
50	1	16	$0\frac{7}{8}$	1	13	$18\frac{7}{8}$		1	11	$12\frac{3}{4}$	
40	1	8	$19\frac{7}{8}$	1	7	$0\frac{5}{8}$		1	5	$5\frac{3}{8}$	
30	1	1	$14\frac{1}{2}$	1	0	$6\frac{1}{2}$		0	18	22	
20	0	14	$9\frac{7}{8}$	0	13	$12\frac{3}{8}$		0	12	$14\frac{1}{4}$	
10	0	7	5	0	6	$18\frac{1}{8}$		0	6	$7\frac{3}{8}$	
9	0	6	$1\frac{5}{8}$	0	6	2		0	5	$16\frac{1}{4}$	
8	0	5	$18\frac{3}{8}$	0	5	$9\frac{3}{4}$		0	5	$1\frac{1}{8}$	
7	0	5	$1\frac{1}{8}$	0	4	$17\frac{1}{2}$		0	4	10	
6	0	4	$7\frac{3}{4}$	0	4	$1\frac{1}{4}$		0	3	$18\frac{3}{4}$	
5	0	3	$14\frac{1}{2}$	0	3	$9\frac{1}{8}$		0	3	$3\frac{5}{8}$	
4	0	2	$21\frac{1}{8}$	0	2	$16\frac{7}{8}$		0	2	$12\frac{1}{2}$	
3	0	2	$3\frac{7}{8}$	0	2	$0\frac{5}{8}$		0	1	$21\frac{3}{8}$	
2	0	1	$10\frac{5}{8}$	0	1	$8\frac{5}{8}$		0	1	$6\frac{1}{4}$	
I oz.	0	0	$17\frac{1}{4}$	0	0	$16\frac{1}{4}$		0	0	$15\frac{1}{8}$	
19	0	0	$16\frac{1}{8}$	0	0	$15\frac{3}{8}$		0	0	$14\frac{5}{8}$	
17	0	0	$14\frac{7}{8}$	0	0	$13\frac{7}{8}$		0	0	$12\frac{7}{8}$	
13	0	0	$1\frac{1}{4}$	0	0	$10\frac{1}{2}$		0	0	$9\frac{5}{8}$	
11	0	0	$9\frac{1}{2}$	0	0	$8\frac{7}{8}$		0	0	$8\frac{3}{8}$	
10	0	0	$8\frac{5}{8}$	0	0	$8\frac{1}{8}$		0	0	$7\frac{5}{8}$	
9	0	0	$7\frac{3}{4}$	0	0	$7\frac{1}{4}$		0	0	$6\frac{3}{4}$	
8	0	0	$6\frac{7}{8}$	0	0	$6\frac{1}{2}$		0	0	6	
7	0	0	6	0	0	$5\frac{5}{8}$		0	0	$5\frac{1}{4}$	
6	0	0	$5\frac{1}{8}$	0	0	$4\frac{7}{8}$		0	0	$4\frac{1}{2}$	
5	0	0	$4\frac{3}{8}$	0	0	4		0	0	$3\frac{3}{4}$	
4	0	0	$3\frac{1}{2}$	0	0	$3\frac{1}{4}$		0	0	3	
3	0	0	$2\frac{5}{8}$	0	0	$2\frac{3}{8}$		0	0	$2\frac{1}{4}$	
2	0	0	$1\frac{3}{4}$	0	0	$1\frac{5}{8}$		0	0	$1\frac{1}{2}$	
dwt.	0	0	$0\frac{7}{8}$	0	0	$0\frac{3}{4}$		0	0	$0\frac{3}{4}$	
$\frac{1}{2}$	0	0	$0\frac{3}{8}$	0	0	$0\frac{3}{8}$		0	0	$0\frac{3}{8}$	

vj Δ M ^s 8.				vj Δ M ^s .				vj Δ M ^s 8.			
oz.	oz.	dwt	gr.	oz.	dwt	gr.		oz.	dwt	gr.	
500	14	12	19	13	10	6		12	7	18	
400	11	14	$5\frac{5}{8}$	10	16	$5\frac{1}{4}$		9	18	$4\frac{3}{4}$	
300	8	15	$16\frac{1}{4}$	8	2	$3\frac{7}{8}$		7	8	$15\frac{5}{8}$	
200	5	17	$27\frac{7}{8}$	5	8	$2\frac{5}{8}$		4	19	$2\frac{3}{8}$	
100	2	18	$13\frac{3}{8}$	2	14	$1\frac{1}{4}$		2	9	$13\frac{1}{4}$	
90	2	12	$16\frac{7}{8}$	2	8	$15\frac{1}{2}$		1	4	$14\frac{1}{4}$	
80	2	6	$20\frac{3}{8}$	2	3	$5\frac{7}{8}$		1	19	$15\frac{3}{8}$	
70	2	0	$23\frac{3}{4}$	1	17	20		1	14	$16\frac{3}{8}$	
60	1	15	$3\frac{1}{4}$	1	12	$10\frac{3}{8}$		1	9	$17\frac{1}{2}$	
50	1	9	$6\frac{3}{4}$	1	7	$6\frac{5}{8}$		1	4	$18\frac{5}{8}$	
40	1	3	$10\frac{1}{8}$	1	1	$14\frac{7}{8}$		0	19	$19\frac{3}{8}$	
30	0	17	$13\frac{5}{8}$	0	16	$5\frac{1}{8}$		0	14	$20\frac{3}{4}$	
20	0	11	$17\frac{1}{8}$	0	10	$19\frac{1}{2}$		0	9	$21\frac{7}{8}$	
10	0	5	$20\frac{1}{2}$	0	5	$9\frac{3}{4}$		0	4	$22\frac{7}{8}$	
9	0	5	$6\frac{1}{2}$	0	4	$20\frac{3}{4}$		0	4	11	
8	0	4	$16\frac{3}{8}$	0	4	$7\frac{3}{4}$		0	3	$23\frac{1}{8}$	
7	0	4	$2\frac{3}{8}$	0	3	$18\frac{7}{8}$		0	3	$11\frac{1}{4}$	
6	0	3	$12\frac{3}{8}$	0	3	$5\frac{7}{8}$		0	2	$23\frac{3}{8}$	
5	0	2	$22\frac{1}{4}$	0	2	$16\frac{7}{8}$		0	2	$11\frac{1}{2}$	
4	0	2	$8\frac{1}{4}$	0	2	$3\frac{7}{8}$		0	1	$23\frac{5}{8}$	
3	0	1	$18\frac{1}{8}$	0	1	$14\frac{7}{8}$		0	1	$11\frac{5}{8}$	
2	0	1	$4\frac{1}{8}$	0	1	2		0	0	$23\frac{3}{4}$	
oz.	0	0	14	0	0	13		0	0	$11\frac{7}{8}$	
19	0	0	$13\frac{3}{8}$	0	0	$12\frac{3}{8}$		0	0	$11\frac{1}{4}$	
17	0	0	12	0	0	11		0	0	10	
13	0	0	$9\frac{1}{8}$	0	0	$8\frac{3}{8}$		0	0	$7\frac{3}{4}$	
11	0	0	$7\frac{3}{8}$	0	0	$7\frac{1}{8}$		0	0	$6\frac{1}{2}$	
10	0	0	7	0	0	$6\frac{1}{2}$		0	0	6	
9	0	0	$6\frac{3}{8}$	0	0	$5\frac{7}{8}$		0	0	$5\frac{3}{8}$	
8	0	0	$5\frac{5}{8}$	0	0	$5\frac{1}{4}$		0	0	$4\frac{3}{4}$	
7	0	0	$4\frac{7}{8}$	0	0	$4\frac{1}{2}$		0	0	$4\frac{1}{8}$	
6	0	0	$4\frac{1}{4}$	0	0	$3\frac{7}{8}$		0	0	$3\frac{5}{8}$	
5	0	0	$3\frac{1}{2}$	0	0	$3\frac{1}{4}$		0	0	3	
4	0	0	$2\frac{3}{4}$	0	0	$2\frac{5}{8}$		0	0	$2\frac{3}{8}$	
3	0	0	$2\frac{1}{8}$	0	0	2		0	0	$1\frac{3}{4}$	
2	0	0	$1\frac{3}{8}$	0	0	$1\frac{1}{4}$		0	0	$1\frac{1}{4}$	
(dwt.	0	0	$0\frac{3}{4}$	0	0	$0\frac{5}{8}$		0	0	$0\frac{5}{8}$	
$\frac{1}{2}$	0	0	$0\frac{3}{8}$	0	0	$0\frac{3}{8}$		0	0	$0\frac{1}{4}$	

v Δ Δ Δ				iii Δ Δ Δ Δ				iii Δ Δ Δ			
oz	oz.	dwt	gr.	oz.	dwt	gr.		oz.	dwt	gr.	
500	1.	5	$5\frac{3}{4}$	10	2	$16\frac{7}{8}$		9	0	$4\frac{3}{4}$	
400	9	0	$4\frac{3}{8}$	8	2	$3\frac{7}{8}$		7	4	$3\frac{1}{2}$	
300	6	15	$3\frac{1}{4}$	6	1	$14\frac{7}{8}$		5	8	$2\frac{5}{8}$	
200	4	10	$2\frac{1}{8}$	4	1	2		3	12	$1\frac{3}{4}$	
100	2	5	$1\frac{1}{8}$	2	0	13		1	16	0	$\frac{7}{8}$
90	2	0	13	1	16	$11\frac{3}{8}$		1	12	$10\frac{3}{8}$	
80	1	16	$0\frac{7}{8}$	1	12	$10\frac{3}{8}$		1	8	$19\frac{7}{8}$	
70	1	11	$12\frac{3}{4}$	1	8	$9\frac{1}{8}$		1	5	$5\frac{3}{4}$	
60	1	7	$0\frac{5}{8}$	1	4	$7\frac{3}{4}$		1	1	$14\frac{7}{8}$	
50	1	2	$12\frac{1}{2}$	1	0	$6\frac{1}{2}$		0	18	$0\frac{1}{8}$	
40	0	18	$0\frac{3}{8}$	0	16	$5\frac{1}{4}$		0	14	10	
30	0	13	$12\frac{3}{8}$	0	12	$3\frac{7}{8}$		0	10	$19\frac{1}{2}$	
20	0	9	$0\frac{1}{4}$	0	8	$2\frac{5}{8}$		0	7	5	
10	0	4	$12\frac{1}{8}$	0	4	$1\frac{1}{4}$		0	3	$14\frac{1}{2}$	
9	0	4	$1\frac{1}{4}$	0	3	$15\frac{1}{2}$		0	3	$5\frac{7}{8}$	
8	0	3	$14\frac{1}{2}$	0	3	$5\frac{7}{8}$		0	2	$21\frac{1}{8}$	
7	0	3	$3\frac{5}{8}$	0	2	$20\frac{1}{8}$		0	2	$12\frac{1}{2}$	
6	0	2	$16\frac{7}{8}$	0	2	$10\frac{3}{5}$		0	2	$3\frac{7}{8}$	
5	0	2	6	0	2	$0\frac{5}{8}$		0	1	$19\frac{1}{4}$	
4	0	1	$19\frac{1}{4}$	0	1	$14\frac{7}{8}$		0	1	$10\frac{5}{8}$	
3	0	1	$8\frac{3}{8}$	0	1	$5\frac{1}{8}$		0	1	2	
2	0	0	$21\frac{5}{8}$	0	0	$19\frac{1}{2}$		0	0	$17\frac{1}{4}$	
1 oz.	0	0	$10\frac{1}{4}$	0	0	$9\frac{3}{4}$		0	0	$8\frac{5}{8}$	
19	0	0	$10\frac{1}{4}$	0	0	$9\frac{1}{4}$		0	0	$8\frac{1}{4}$	
17	0	0	$9\frac{1}{8}$	0	0	$8\frac{1}{4}$		0	0	$7\frac{3}{8}$	
13	0	0	7	0	0	$6\frac{3}{8}$		0	0	$5\frac{5}{8}$	
11	0	0	6	0	0	$5\frac{3}{8}$		0	0	$4\frac{3}{4}$	
10	0	0	$5\frac{3}{8}$	0	0	$4\frac{7}{8}$		0	0	$4\frac{3}{8}$	
9	0	0	$4\frac{7}{8}$	0	0	$4\frac{3}{8}$		0	0	$3\frac{7}{8}$	
8	0	0	$4\frac{3}{8}$	0	0	$3\frac{7}{8}$		0	0	$3\frac{1}{2}$	
7	0	0	$3\frac{3}{4}$	0	0	$3\frac{3}{8}$		0	0	3	
6	0	0	$3\frac{1}{4}$	0	0	$2\frac{7}{8}$		0	0	$2\frac{5}{8}$	
5	0	0	$2\frac{3}{4}$	0	0	$2\frac{3}{8}$		0	0	$2\frac{1}{8}$	
4	0	0	$2\frac{1}{8}$	0	0	2		0	0	$1\frac{3}{4}$	
3	0	0	$1\frac{5}{8}$	0	0	$1\frac{1}{2}$		0	0	$1\frac{1}{4}$	
2	0	0	$1\frac{1}{8}$	0	0	1		0	0	$0\frac{7}{8}$	
1 dwt.	0	0	$0\frac{1}{2}$	0	0	$0\frac{1}{2}$		0	0	$0\frac{5}{8}$	
$\frac{1}{2}$	0	0	$0\frac{1}{4}$	0	0	$0\frac{1}{4}$		0	0	$0\frac{1}{4}$	

iiij dms gr .				iiij dms .				ij dms gr .			
oz.	oz.	dwt	gr.	oz.	dwt	gr.		oz.	dwt	gr.	
500	7	17	$15\frac{3}{4}$	6	15	$3\frac{1}{4}$		5	12	$14\frac{3}{4}$	
400	6	6	3	5	8	$2\frac{5}{8}$		4	10	$2\frac{1}{4}$	
300	4	14	$14\frac{1}{4}$	4	1	2		3	7	$13\frac{5}{8}$	
200	3	3	$1\frac{1}{2}$	2	14	$1\frac{1}{4}$		2	5	$1\frac{1}{8}$	
100	1	11	$12\frac{3}{4}$	1	7	$0\frac{5}{8}$		1	2	$12\frac{1}{8}$	
90	1	8	$9\frac{1}{8}$	1	4	$7\frac{1}{8}$		1	0	$6\frac{5}{8}$	
80	1	5	$5\frac{3}{8}$	1	1	$14\frac{7}{8}$		0	18	$0\frac{5}{8}$	
70	1	2	$1\frac{3}{4}$	0	18	22		0	15	$18\frac{1}{2}$	
60	0	18	22	0	16	$5\frac{1}{4}$		0	13	$12\frac{3}{8}$	
50	0	15	$18\frac{3}{8}$	0	13	$12\frac{3}{8}$		0	11	$6\frac{1}{4}$	
40	0	12	$14\frac{3}{4}$	0	10	$19\frac{1}{2}$		0	9	$0\frac{1}{4}$	
30	0	9	11	0	8	$2\frac{5}{8}$		0	6	$18\frac{1}{8}$	
20	0	6	$7\frac{3}{8}$	0	5	$9\frac{3}{4}$		0	4	$12\frac{1}{2}$	
10	0	3	$3\frac{5}{8}$	0	2	$16\frac{7}{8}$		0	2	$6\frac{5}{8}$	
9	0	2	$20\frac{1}{8}$	0	2	$10\frac{3}{8}$		0	2	$0\frac{5}{8}$	
8	0	2	$12\frac{1}{2}$	0	2	$3\frac{7}{8}$		0	1	$19\frac{1}{4}$	
7	0	2	5	0	1	$21\frac{3}{8}$		0	1	$13\frac{3}{8}$	
6	0	1	$21\frac{3}{8}$	0	1	$14\frac{7}{8}$		0	1	$8\frac{1}{2}$	
5	0	1	$13\frac{7}{8}$	0	1	$8\frac{3}{8}$		0	1	3	
4	0	1	$6\frac{1}{4}$	0	1	2		0	0	$21\frac{5}{8}$	
3	0	0	$22\frac{3}{4}$	0	0	$19\frac{1}{2}$		0	0	$16\frac{1}{4}$	
2	0	0	$15\frac{1}{8}$	0	0	13		0	0	$10\frac{7}{8}$	
1 oz.	0	0	$7\frac{1}{8}$	0	0	$6\frac{1}{2}$		0	0	$5\frac{3}{8}$	
19	0	0	$7\frac{1}{4}$	0	0	$6\frac{1}{8}$		0	0	$5\frac{1}{8}$	
17	0	0	$6\frac{3}{8}$	0	0	$5\frac{1}{2}$		0	0	$4\frac{5}{8}$	
13	0	0	$4\frac{7}{8}$	0	0	$4\frac{1}{4}$		0	0	$3\frac{1}{2}$	
11	0	0	$4\frac{1}{8}$	0	0	$3\frac{5}{8}$		0	0	3	
10	0	0	$3\frac{7}{8}$	0	0	$3\frac{1}{4}$		0	0	$2\frac{3}{4}$	
9	0	0	$3\frac{3}{8}$	0	0	$2\frac{7}{8}$		0	0	$2\frac{5}{8}$	
8	0	0	3	0	0	$2\frac{5}{8}$		0	0	$2\frac{1}{8}$	
7	0	0	$2\frac{5}{8}$	0	0	$2\frac{1}{4}$		0	0	$1\frac{7}{8}$	
6	0	0	$2\frac{1}{4}$	0	0	2		0	0	$1\frac{5}{8}$	
5	0	0	$1\frac{7}{8}$	0	0	$1\frac{5}{8}$		0	0	$1\frac{3}{8}$	
4	0	0	$1\frac{1}{2}$	0	0	$1\frac{1}{4}$		0	0	$1\frac{1}{8}$	
3	0	0	$1\frac{1}{8}$	0	0	1		0	0	$0\frac{3}{4}$	
2	0	0	$0\frac{3}{4}$	0	0	$0\frac{5}{8}$		0	0	$0\frac{1}{2}$	
1 dwt.	0	0	$0\frac{5}{8}$	0	0	$0\frac{3}{8}$		0	0	$0\frac{1}{4}$	
$\frac{1}{2}$	0	0	$0\frac{1}{4}$	0	0	$0\frac{1}{8}$		0	0	$0\frac{1}{8}$	

ii 5/16				i 5/16 5/8				i 5/16			
oz.	oz.	dwt	gr.	oz.	dwt	gr.		oz.	dwt	gr.	
500	4	10	2 $\frac{1}{8}$	3	7	13 $\frac{5}{8}$		2	5	18 $\frac{1}{8}$	
400	3	12	1 $\frac{3}{4}$	2	14	1 $\frac{1}{4}$		1	16	0 $\frac{7}{8}$	
300	2	14	1 $\frac{1}{4}$	2	0	13		1	7	0 $\frac{5}{8}$	
200	1	16	0 $\frac{7}{8}$	1	7	0 $\frac{5}{8}$		0	18	0 $\frac{3}{8}$	
100	0	18	0 $\frac{3}{8}$	0	13	12 $\frac{3}{8}$		0	9	0 $\frac{1}{4}$	
90	0	16	5 $\frac{1}{8}$	0	12	3 $\frac{7}{8}$		0	8	0 $\frac{1}{4}$	
80	0	14	9 $\frac{7}{8}$	0	10	19 $\frac{1}{2}$		0	7	5	
70	0	12	14 $\frac{5}{8}$	0	9	11		0	6	5	
60	0	10	19 $\frac{1}{2}$	0	8	2 $\frac{5}{8}$		0	5	4 $\frac{7}{8}$	
50	0	9	0 $\frac{1}{4}$	0	6	18 $\frac{1}{8}$		0	4	12 $\frac{1}{8}$	
40	0	7	4 $\frac{3}{4}$	0	5	9 $\frac{3}{4}$		0	3	14 $\frac{1}{2}$	
30	0	5	9 $\frac{3}{4}$	0	4	1 $\frac{1}{4}$		0	2	14 $\frac{1}{2}$	
20	0	3	14 $\frac{1}{2}$	0	2	16 $\frac{7}{8}$		0	1	19 $\frac{1}{4}$	
10	0	1	19 $\frac{1}{4}$	0	1	8 $\frac{3}{8}$		0	0	21 $\frac{5}{8}$	
9	0	1	14 $\frac{7}{8}$	0	1	5 $\frac{1}{4}$		0	0	19 $\frac{1}{2}$	
8	0	1	10 $\frac{5}{8}$	0	1	2		0	0	17 $\frac{1}{4}$	
7	0	1	6 $\frac{1}{4}$	0	0	22 $\frac{3}{4}$		0	0	15 $\frac{1}{8}$	
6	0	1	1 $\frac{7}{8}$	0	0	19 $\frac{1}{2}$		0	0	13	
5	0	0	21 $\frac{5}{8}$	0	0	16 $\frac{1}{4}$		0	0	10 $\frac{3}{4}$	
4	0	0	7 $\frac{1}{4}$	0	0	13		0	0	8 $\frac{5}{8}$	
3	0	0	13	0	0	9 $\frac{3}{4}$		0	0	6 $\frac{1}{2}$	
2	0	0	8 $\frac{5}{8}$	0	0	6 $\frac{1}{2}$		0	0	4 $\frac{3}{4}$	
1 oz.	0	0	4 $\frac{3}{8}$	0	0	3 $\frac{1}{4}$		0	0	2 $\frac{1}{8}$	
19	0	0	4 $\frac{1}{8}$	0	0	3 $\frac{1}{8}$		0	0	2	
17	0	0	3 $\frac{5}{8}$	0	0	2 $\frac{3}{4}$		0	0	1 $\frac{7}{8}$	
13	0	0	2 $\frac{3}{4}$	0	0	2 $\frac{1}{8}$		0	0	1 $\frac{3}{4}$	
11	0	0	2 $\frac{3}{8}$	0	0	1 $\frac{3}{4}$		0	0	1 $\frac{1}{4}$	
10	0	0	2 $\frac{1}{8}$	0	0	1 $\frac{5}{8}$		0	0	1 $\frac{1}{8}$	
9	0	0	2	0	0	1 $\frac{1}{2}$		0	0	1	
8	0	0	1 $\frac{3}{4}$	0	0	1 $\frac{1}{4}$		0	0	0 $\frac{7}{8}$	
7	0	0	1 $\frac{1}{2}$	0	0	1 $\frac{1}{8}$		0	0	0 $\frac{3}{4}$	
6	0	0	1 $\frac{1}{4}$	0	0	1		0	0	0 $\frac{5}{8}$	
5	0	0	1 $\frac{1}{8}$	0	0	0 $\frac{3}{4}$		0	0	0 $\frac{1}{2}$	
4	0	0	0 $\frac{7}{8}$	0	0	0 $\frac{5}{8}$		0	0	0 $\frac{3}{8}$	
3	0	0	0 $\frac{5}{8}$	0	0	0 $\frac{1}{2}$		0	0	0 $\frac{3}{8}$	
2	0	0	0 $\frac{3}{8}$	0	0	0 $\frac{3}{8}$		0	0	0 $\frac{1}{4}$	
1 dwt.	0	0	0 $\frac{1}{4}$	0	0	0 $\frac{1}{8}$		0	0	0 $\frac{1}{8}$	
$\frac{1}{2}$	0	0	0 $\frac{1}{8}$	0	0	0		0	0	0	

oz.				oz	multiply	oz	multiply
500	1	2	12 $\frac{1}{2}$	1	ij $\frac{1}{2}$ by 3	11	by 6
400	0	18	0 $\frac{3}{5}$	1	ij $\frac{1}{2}$ by 9	9 $\frac{1}{2}$	by 7
300	0	13	12 $\frac{3}{8}$	1	iii $\frac{1}{2}$ by 7	13 $\frac{1}{2}$	by 5
200	0	9	0 $\frac{1}{4}$	1	v $\frac{1}{2}$ by 3	17	by 4
100	0	4	12 $\frac{1}{3}$	1	vij $\frac{1}{2}$ by 5	11 $\frac{1}{2}$	by 6
90	0	4	1 $\frac{1}{4}$	1	vij $\frac{1}{2}$ by 3	10	by 7
80	0	3	14 $\frac{1}{2}$	1	xi $\frac{1}{2}$ by 3	12	by 6
70	0	3	3 $\frac{5}{8}$	1	xij $\frac{1}{2}$ by 5	14 $\frac{1}{2}$	by 5
60	0	2	16 $\frac{7}{8}$	1	xij $\frac{1}{2}$ by 3	18 $\frac{1}{2}$	by 4
50	0	2	6	1	xij $\frac{1}{2}$ by 3	15	by 5
40	0	1	9 $\frac{1}{4}$	1	13 $\frac{1}{2}$ by 3	19	by 4
30	0	1	8 $\frac{3}{8}$	1	10 $\frac{1}{2}$ by 4	8 $\frac{1}{2}$	by 9
20	0	0	21 $\frac{5}{8}$	1	8 $\frac{1}{2}$ by 5	11	by 7
10	0	0	10 $\frac{3}{4}$	1	14 $\frac{1}{2}$ by 3	15 $\frac{1}{2}$	by 5
9	0	0	9 $\frac{3}{4}$	1	11 by 4	19 $\frac{1}{2}$	by 4
8	0	0	8 $\frac{5}{8}$	1	11 by 5	9	by 9
7	0	0	7 $\frac{5}{8}$	1	6 $\frac{1}{2}$ by 7	16 $\frac{1}{2}$	by 5
6	0	0	6 $\frac{1}{2}$	1	15 $\frac{1}{2}$ by 3	12	by 7
5	0	0	5 $\frac{5}{8}$	1	9 $\frac{1}{2}$ by 5	17	by 5
4	0	0	4 $\frac{3}{8}$	1	12 by 4	9 $\frac{1}{2}$	by 9
3	0	0	3 $\frac{1}{4}$	1	7 by 7	12 $\frac{1}{2}$	by 7
2	0	0	2 $\frac{1}{8}$	1	16 $\frac{1}{2}$ by 3	11	by 8
1 oz.	0	0	1	1	12 $\frac{1}{2}$ by 4	18	by 5
19	0	0	7 $\frac{7}{8}$	1	17 by 3	13	by 7
17	0	0	0 $\frac{7}{8}$	1	17 $\frac{1}{2}$ by 3	11 $\frac{1}{2}$	by 8
13	0	0	0 $\frac{5}{8}$	1	18 by 3	18 $\frac{1}{2}$	by 5
11	0	0	0 $\frac{1}{2}$	1	11 by 5	13 $\frac{1}{2}$	by 7
10	0	0	0 $\frac{1}{2}$	1	18 $\frac{1}{2}$ by 3	9	by 5
9	0	0	0 $\frac{1}{2}$	1	14 by 4	19 $\frac{1}{2}$	by 5
8	0	0	0 $\frac{3}{8}$	1	19 by 3	14	by 7
7	0	0	0 $\frac{3}{8}$	1	14 $\frac{1}{2}$ by 4	11	by 9
6	0	0	0 $\frac{1}{4}$	1	19 $\frac{1}{2}$ by 3	17	by 6
5	0	0	0 $\frac{1}{4}$	1	8 $\frac{1}{2}$ by 7	11 $\frac{1}{2}$	by 9
4	0	0	0 $\frac{1}{4}$	1	15 $\frac{1}{2}$ by 4	3	by 8
3	0	0	0 $\frac{1}{8}$	1	12 $\frac{1}{2}$ by 5	7 $\frac{1}{2}$	by 6
2	0	0	0 $\frac{1}{8}$	1	9 by 7	18	by 6
1 dt.	0	0	0	1	16 by 4	18 $\frac{1}{2}$	by 7
$\frac{1}{2}$	0	0	0	1	13 by 5	18 $\frac{1}{2}$	by 6

Use of the SILVER TABLES.

The fineness from one ounce to an half penny weight stands at the top of the page, and the weight from 500 oz. to half a pennyweight on the side; and where they meet is found the quantity of standard; as for example, against 400 oz. and under 14 dwt. is found 25 oz. 4 dwt. $12\frac{1}{8}$ gr. and against 70 oz. and under $10\frac{1}{2}$ dwt. stands 3 oz. 5 dwt. $5\frac{1}{4}$ gr.

The standard contained in any other fineness between 1 oz. and 2 oz. (except odd $\frac{1}{2}$ dwts.) is found by doubling those in the table between $10\frac{1}{2}$ dwt. and $19\frac{1}{2}$ dwt.. thus the standard in 90 oz. of 1 oz. 19 dwt. fine, is found to be 15 oz. 16 dwt. $5\frac{1}{4}$ gr. by doubling that under $19\frac{1}{2}$ dwt. and that in 90 oz. of 1 oz. 1 dwt. is 8 oz. 8 dwt. $6\frac{1}{7}$ gr. by doubling $10\frac{1}{2}$ dwt. we have likewise added two columns at the end of the tables, of the standard of several finenesses which are to be found by multiplying those in the table by 3, 4, 5, &c. as 1 oz. $2\frac{1}{2}$ dwt. is had by multiplying $7\frac{1}{2}$ dwt. by 3, and 2 oz. 17 dwt. is found to be produced from 3 times 19 dwt. and so of the others.

But the standard contained in any ingot, of any fineness, may be found from that of 1 oz. viz. by multiplying it by the number of oz. for the ounces, and dividing it by the aliquot parts of an ounce for the dwts. thus in 300 oz. of 3 oz. $12\frac{1}{2}$ dwt. there

there is 97 oz. 19 dwt. $11\frac{1}{8}$ gr. of standard, and in 80 oz. of 4 oz. 17 dwt. fine there is 34 oz. 19 dwt. $2\frac{1}{4}$ gr. as follows

oz. dwt. gr.			oz. dwt. gr.		
27	0	13	7	4	$3\frac{1}{2}$
		3			4
3 oz.	81	1 15	4 oz.	28	16 14
10 dwt.	13	10 $6\frac{1}{2}$	10 dwt.	3	12 $1\frac{3}{4}$
$2\frac{1}{2}$ dwt.	3	7 $13\frac{5}{8}$	5 dwt.	1	16 $0\frac{7}{8}$
			2 dwt.		14 10
		97 19 $11\frac{1}{8}$			
					34 19 $2\frac{5}{8}$

The examples above are from weights found in the table, but those which are not in the table, if under 600 oz. may be collected out of it; thus, those of 598 oz. 13 dwt. of $13\frac{1}{2}$ dwt. fine, and 183 oz. 2 dwt. of $7\frac{1}{2}$ fine, are as follows:

oz. dwt. gr.			oz. dwt. gr.		
500 oz.	29	5 14	100 oz.	3	7 $13\frac{1}{4}$
90 oz.	5	5 $9\frac{3}{4}$	80 oz.	2	14 $1\frac{1}{4}$
8 oz.	0	9 $8\frac{7}{8}$	3 oz.	0	2 $0\frac{5}{8}$
13 dwt.	0	0 $18\frac{1}{4}$	2 dwt.	0	0 $1\frac{5}{8}$
		35 1 $2\frac{7}{8}$ standard			6 3 $16\frac{3}{4}$ stan.

If the fineness is between 1 oz. and 2 oz. collect the weight from half the fineness, and then double it, as if it is 1 oz. 11 dwt. collect it from $15\frac{1}{2}$ dwt. if 1 oz. 17 dwt. from $18\frac{1}{2}$ dwt. and for any of those in the two last columns, it must be from the fineness against it, and then multiplied by the number against it, as 2 oz. 9 dwt. from 7 dwt.

7 dwt. and then multiplied by 7, and that of 4 oz. 5 dwt. from 17 dwt. and then multiplied by 5.

In making use of these tables, it is generally the betterness or worseness of any ingot, which is to be taken out from them, according to the report; and when better, it is added to the gross weight, but if worse subtracted from it, which gives the quantity of standard contained in it.

Thus in the former examples, if the finenesses there given are put for the relative ones, instead of the absolute ones, the answer will be as follows:

	oz.	dwt.	gr.	
To	400	0	0	Br. $\text{xiij } \text{℥}^{\text{ss}}$
Add	25	4	$12\frac{1}{8}$	
	425	4	$12\frac{1}{8}$	standard
From	70	0	0	Wo. $\text{v } \text{℥}^{\text{ss}}$
Take	3	5	$5\frac{1}{4}$	
	66	14	$18\frac{3}{4}$	standard
Also from	300	0	0	Wo. $\text{iiij } \text{℥}^{\text{ss}}$
take	97	19	$11\frac{1}{8}$	
	202	0	$12\frac{1}{8}$	standard
From	80	0	0	Wo. $\text{iiij } \text{℥}^{\text{ss}}$
Take	34	19	$2\frac{5}{8}$	
	45	0	$21\frac{3}{8}$	standard
To	598	13	0	Br. $\text{xiij } \text{℥}^{\text{ss}}$
Add	35	1	$2\frac{7}{8}$	
	633	14	$2\frac{7}{8}$	standard
To	183	2	0	Br. $\text{viij } \text{℥}^{\text{ss}}$
Add	6	3	17	
	189	5	17	standard

TABLES

T A B L E S

OF THE

Q U A N T I T Y

OF

Standard G O L D,

Contained in any Ingot under
the Weight of 500 Ounces;

A N D

From two Carats to one Quarter
Carat Grain in Fineness

ij car.				i car. ii $\frac{3}{4}$ gr				i car. ii $\frac{1}{2}$ gr			
oz.	oz.	dwt	gr.	oz.	dwt	gr.		oz.	dwt	gr.	
500	45	9	2 $\frac{1}{8}$	44	0	16 $\frac{3}{8}$		42	12	6 $\frac{1}{2}$	
400	36	7	7 $\frac{1}{2}$	35	4	13 $\frac{1}{8}$		34	I	9 $\frac{3}{8}$	
300	27	5	11 $\frac{7}{8}$	26	8	9 $\frac{7}{8}$		25	II	8 $\frac{3}{4}$	
200	18	3	5 $\frac{3}{4}$	17	12	6 $\frac{1}{2}$		17	0	20 $\frac{1}{8}$	
100	9	I	19 $\frac{5}{8}$	8	16	3 $\frac{1}{4}$		8	10	10 $\frac{7}{8}$	
90	8	3	14 $\frac{1}{2}$	7	18	12 $\frac{1}{2}$		7	13	9 $\frac{1}{8}$	
80	7	5	10 $\frac{7}{8}$	7	0	21 $\frac{7}{8}$		6	16	8 $\frac{3}{4}$	
70	6	7	6 $\frac{1}{2}$	6	3	7 $\frac{1}{8}$		5	18	7 $\frac{5}{8}$	
60	5	9	2 $\frac{1}{8}$	5	5	16 $\frac{3}{8}$		5	2	6 $\frac{1}{2}$	
50	4	10	21 $\frac{1}{8}$	4	8	1 $\frac{5}{8}$		4	5	5 $\frac{1}{2}$	
40	3	12	17 $\frac{1}{2}$	3	10	10 $\frac{7}{8}$		3	8	4 $\frac{3}{4}$	
30	2	14	13 $\frac{3}{4}$	2	12	20 $\frac{1}{8}$		2	II	3 $\frac{1}{4}$	
20	I	16	8 $\frac{3}{4}$	I	15	5 $\frac{1}{2}$		I	14	2 $\frac{1}{8}$	
10	0	18	4 $\frac{3}{8}$	0	17	14 $\frac{3}{4}$		0	17	I	
9	0	16	8 $\frac{3}{4}$	0	15	20 $\frac{1}{2}$		0	15	8 $\frac{1}{8}$	
8	0	14	13 $\frac{3}{8}$	0	14	2 $\frac{1}{8}$		0	13	15 $\frac{3}{8}$	
7	0	12	17 $\frac{3}{8}$	0	12	7 $\frac{7}{8}$		0	11	22 $\frac{3}{8}$	
6	0	10	21 $\frac{1}{4}$	0	10	13 $\frac{5}{8}$		0	10	5 $\frac{1}{2}$	
5	0	9	2 $\frac{1}{8}$	0	8	19 $\frac{3}{8}$		0	8	12 $\frac{1}{2}$	
4	0	7	6 $\frac{1}{8}$	0	7	1 $\frac{1}{8}$		0	6	19 $\frac{5}{8}$	
3	0	5	10 $\frac{1}{4}$	0	5	6 $\frac{7}{8}$		0	5	2 $\frac{3}{4}$	
2	0	3	15 $\frac{5}{8}$	0	3	12 $\frac{1}{2}$		0	3	9 $\frac{3}{4}$	
I oz.	0	I	19 $\frac{7}{8}$	0	I	18 $\frac{1}{4}$		0	I	16 $\frac{7}{8}$	
19	0	I	17 $\frac{1}{2}$	0	I	16 $\frac{1}{8}$		0	I	14 $\frac{7}{8}$	
17	0	I	15 $\frac{1}{4}$	0	I	11 $\frac{7}{8}$		0	I	10 $\frac{3}{4}$	
13	0	I	4 $\frac{1}{4}$	0	I	3 $\frac{1}{2}$		0	I	2 $\frac{5}{8}$	
11	0	I	0	0	0	23 $\frac{1}{4}$		0	0	22 $\frac{1}{2}$	
10	0	0	21 $\frac{7}{8}$	0	0	21 $\frac{1}{8}$		0	0	20 $\frac{1}{2}$	
9	0	0	19 $\frac{5}{8}$	0	0	19		0	0	18 $\frac{3}{8}$	
8	0	0	17 $\frac{1}{2}$	0	0	16 $\frac{7}{8}$		0	0	16 $\frac{3}{8}$	
7	0	0	15 $\frac{1}{4}$	0	0	14 $\frac{3}{4}$		0	0	14 $\frac{3}{8}$	
6	0	0	13 $\frac{1}{8}$	0	0	12 $\frac{5}{8}$		0	0	12 $\frac{1}{4}$	
5	0	0	10 $\frac{7}{8}$	0	0	10 $\frac{5}{8}$		0	0	10 $\frac{1}{4}$	
4	0	0	8 $\frac{3}{4}$	0	0	8 $\frac{1}{2}$		0	0	8 $\frac{1}{8}$	
3	0	0	6 $\frac{1}{2}$	0	0	6 $\frac{3}{8}$		0	0	6 $\frac{1}{8}$	
2	0	0	4 $\frac{5}{8}$	0	0	4 $\frac{1}{4}$		0	0	4 $\frac{1}{8}$	
I dwt.	0	0	2 $\frac{1}{8}$	0	0	2 $\frac{1}{8}$		0	0	2	
$\frac{1}{2}$	0	0	I $\frac{1}{8}$	0	0	I		0	0	I	

1 ear 11 $\frac{1}{4}$ gr				1 ear 11 gr				1 ear 11 $\frac{3}{4}$ gr			
oz.	oz.	dwt	gr.	oz.	dwt	gr.		oz.	dwt	gr.	
500	41	3	20 $\frac{3}{4}$	39	15	10 $\frac{7}{8}$		38	7	1 $\frac{1}{8}$	
400	32	19	2 $\frac{5}{8}$	31	16	3 $\frac{5}{8}$		30	13	15 $\frac{1}{4}$	
300	24	14	7 $\frac{5}{8}$	23	17	2 $\frac{3}{4}$		23	0	5 $\frac{1}{2}$	
200	16	9	13 $\frac{1}{8}$	15	18	1 $\frac{7}{8}$		15	6	19 $\frac{5}{8}$	
100	8	4	18 $\frac{1}{2}$	7	19	0 $\frac{7}{8}$		7	13	9 $\frac{7}{8}$	
90	7	8	7 $\frac{1}{8}$	7	3	3 $\frac{1}{2}$		6	18	1 $\frac{5}{8}$	
80	6	11	19 $\frac{5}{8}$	6	7	5 $\frac{7}{8}$		6	2	17 $\frac{1}{2}$	
70	5	15	8 $\frac{1}{8}$	5	11	8		5	7	9 $\frac{1}{4}$	
60	4	18	20 $\frac{3}{4}$	4	15	10 $\frac{1}{8}$		4	12	1 $\frac{1}{8}$	
50	4	2	9 $\frac{1}{4}$	3	19	12 $\frac{1}{2}$		3	16	16 $\frac{7}{8}$	
40	3	5	21 $\frac{1}{8}$	3	3	16		3	1	8 $\frac{3}{4}$	
30	2	9	10 $\frac{3}{8}$	2	7	17 $\frac{1}{8}$		2	6	0 $\frac{1}{2}$	
20	1	12	23	1	11	19 $\frac{1}{2}$		1	10	16 $\frac{3}{8}$	
10	0	16	11 $\frac{1}{2}$	0	15	21 $\frac{3}{4}$		0	15	8 $\frac{1}{8}$	
9	0	14	19 $\frac{7}{8}$	0	14	7 $\frac{5}{8}$		0	13	16 $\frac{3}{8}$	
8	0	13	4 $\frac{3}{8}$	0	12	17 $\frac{3}{8}$		0	12	6 $\frac{1}{2}$	
7	0	11	12 $\frac{7}{8}$	0	11	3 $\frac{1}{4}$		0	10	17 $\frac{3}{4}$	
6	0	9	21 $\frac{1}{4}$	0	9	13		0	9	4 $\frac{7}{8}$	
5	0	8	5 $\frac{3}{4}$	0	7	22 $\frac{7}{8}$		0	7	16 $\frac{1}{8}$	
4	0	6	14 $\frac{1}{4}$	0	6	8 $\frac{3}{4}$		0	6	3 $\frac{1}{4}$	
3	0	4	22 $\frac{5}{8}$	0	4	18 $\frac{1}{2}$		0	4	14 $\frac{1}{2}$	
2	0	3	7 $\frac{1}{8}$	0	3	4 $\frac{3}{8}$		0	3	1 $\frac{5}{8}$	
1 oz.	0	1	15 $\frac{1}{2}$	0	1	14 $\frac{1}{8}$		0	1	12 $\frac{7}{8}$	
19	0	1	13 $\frac{1}{2}$	0	1	12 $\frac{1}{4}$		0	1	11	
17	0	1	11 $\frac{5}{8}$	0	1	8 $\frac{1}{2}$		0	1	7 $\frac{1}{4}$	
13	0	1	1 $\frac{3}{4}$	0	1	0 $\frac{3}{4}$		0	0	23 $\frac{7}{8}$	
11	0	0	21 $\frac{3}{4}$	0	0	21		0	0	20 $\frac{1}{4}$	
10	0	0	19 $\frac{3}{4}$	0	0	19 $\frac{1}{8}$		0	0	18 $\frac{5}{8}$	
9	0	0	17 $\frac{3}{4}$	0	0	17 $\frac{1}{8}$		0	0	16 $\frac{5}{8}$	
8	0	0	15 $\frac{7}{8}$	0	0	15 $\frac{1}{4}$		0	0	14 $\frac{3}{4}$	
7	0	0	13 $\frac{7}{8}$	0	0	13 $\frac{3}{8}$		0	0	12 $\frac{7}{8}$	
6	0	0	11 $\frac{7}{8}$	0	0	11 $\frac{1}{2}$		0	0	11	
5	0	0	9 $\frac{7}{8}$	0	0	9 $\frac{1}{2}$		0	0	9 $\frac{1}{4}$	
4	0	0	7 $\frac{7}{8}$	0	0	7 $\frac{5}{8}$		0	0	7 $\frac{3}{8}$	
3	0	0	5 $\frac{7}{8}$	0	0	5 $\frac{3}{4}$		0	0	5 $\frac{1}{2}$	
2	0	0	4	0	0	3 $\frac{7}{8}$		0	0	3 $\frac{5}{8}$	
1 dwt	0	0	2	0	0	1 $\frac{7}{8}$		0	0	1 $\frac{7}{8}$	
$\frac{1}{2}$	0	0	1	0	0	1		0	0	0 $\frac{7}{8}$	

car. ij $\frac{1}{2}$ gr.				car. ij $\frac{1}{4}$ gr.				car. ij gr.			
oz.	oz.	dwt	gr.	oz.	dwt	gr.		oz.	dwt	gr.	
500	36	18	14 $\frac{1}{4}$	35	10	5 $\frac{1}{2}$		34	1	19 $\frac{5}{8}$	
400	29	10	21 $\frac{7}{8}$	28	8	4 $\frac{3}{8}$		27	5	10 $\frac{7}{8}$	
300	22	3	4 $\frac{3}{8}$	21	6	3 $\frac{1}{4}$		20	9	2 $\frac{1}{8}$	
200	14	15	10 $\frac{7}{8}$	14	4	2 $\frac{1}{8}$		13	12	17 $\frac{1}{2}$	
100	7	7	17 $\frac{1}{2}$	7	2	1 $\frac{1}{8}$		6	16	8 $\frac{3}{4}$	
90	6	12	22 $\frac{7}{8}$	6	7	20 $\frac{1}{8}$		6	2	17 $\frac{1}{2}$	
80	5	18	4 $\frac{3}{8}$	5	13	15 $\frac{1}{4}$		5	9	2 $\frac{1}{8}$	
70	5	3	9 $\frac{1}{8}$	4	19	10 $\frac{3}{8}$		4	15	10 $\frac{5}{8}$	
60	4	8	5 $\frac{1}{4}$	4	5	5 $\frac{1}{2}$		4	1	19 $\frac{5}{8}$	
50	3	13	20 $\frac{3}{4}$	3	11	0 $\frac{1}{2}$		3	8	4 $\frac{3}{8}$	
40	2	19	2 $\frac{1}{8}$	2	16	19 $\frac{5}{8}$		2	14	13 $\frac{1}{2}$	
30	2	4	7 $\frac{5}{8}$	2	2	14 $\frac{3}{4}$		2	0	21 $\frac{7}{8}$	
20	1	9	13 $\frac{1}{8}$	1	8	9 $\frac{7}{8}$		1	7	6 $\frac{1}{2}$	
10	0	14	18 $\frac{1}{2}$	0	14	4 $\frac{7}{8}$		0	13	15 $\frac{1}{4}$	
9	0	13	7 $\frac{1}{8}$	0	12	18 $\frac{7}{8}$		0	12	6 $\frac{1}{2}$	
8	0	11	19 $\frac{5}{8}$	0	11	8 $\frac{3}{4}$		0	10	21 $\frac{1}{8}$	
7	0	10	8 $\frac{1}{8}$	0	9	22 $\frac{5}{8}$		0	9	13 $\frac{1}{8}$	
6	0	8	20 $\frac{3}{4}$	0	8	12 $\frac{1}{2}$		0	8	4 $\frac{3}{8}$	
5	0	7	9 $\frac{1}{4}$	0	7	2 $\frac{1}{2}$		0	6	19 $\frac{5}{8}$	
4	0	5	21 $\frac{7}{8}$	0	5	16 $\frac{3}{8}$		0	5	10 $\frac{7}{8}$	
3	0	4	10 $\frac{3}{8}$	0	4	6 $\frac{1}{4}$		0	4	2 $\frac{1}{8}$	
2	0	2	22 $\frac{7}{8}$	0	2	20 $\frac{1}{8}$		0	2	17 $\frac{1}{2}$	
1 oz.	0	1	11 $\frac{1}{2}$	0	1	10 $\frac{1}{8}$		0	1	8 $\frac{3}{4}$	
19	0	1	9 $\frac{5}{8}$	0	1	8 $\frac{3}{8}$		0	1	7 $\frac{1}{8}$	
17	0	1	6 $\frac{1}{8}$	0	1	5		0	1	3 $\frac{1}{8}$	
13	0	0	23	0	0	22 $\frac{1}{2}$		0	0	21 $\frac{1}{4}$	
11	0	0	19 $\frac{3}{4}$	0	0	18 $\frac{3}{4}$		0	0	18	
10	0	0	17 $\frac{3}{4}$	0	0	17		0	0	16 $\frac{3}{8}$	
9	0	0	16	0	0	15 $\frac{3}{8}$		0	0	14 $\frac{3}{4}$	
8	0	0	14 $\frac{1}{8}$	0	0	13 $\frac{5}{8}$		0	0	13 $\frac{1}{8}$	
7	0	0	12 $\frac{1}{8}$	0	0	11 $\frac{7}{8}$		0	0	11 $\frac{1}{2}$	
6	0	0	10 $\frac{5}{8}$	0	0	10 $\frac{1}{4}$		0	0	9 $\frac{7}{8}$	
5	0	0	8 $\frac{7}{8}$	0	0	8 $\frac{1}{2}$		0	0	8 $\frac{1}{8}$	
4	0	0	7 $\frac{1}{8}$	0	0	6 $\frac{7}{8}$		0	0	6 $\frac{1}{2}$	
3	0	0	5 $\frac{3}{8}$	0	0	5 $\frac{1}{8}$		0	0	4 $\frac{7}{8}$	
2	0	0	3 $\frac{1}{2}$	0	0	3 $\frac{3}{8}$		0	0	3 $\frac{1}{4}$	
dwt.	0	0	1 $\frac{7}{8}$	0	0	1 $\frac{1}{4}$		0	0	1 $\frac{5}{8}$	
1	0	0	0 $\frac{7}{8}$	0	0	0 $\frac{7}{8}$		0	0	0 $\frac{7}{8}$	

i car $\frac{3}{4}$ gr.				i car $\frac{1}{2}$ gr.				i car $\frac{1}{4}$ gr.			
oz.	oz.	dwt	gr.	oz.	dwt	gr.		oz.	dwt	gr.	
500	32	13	$9\frac{5}{8}$	31	5	0		29	16	$14\frac{1}{8}$	
400	26	2	$17\frac{1}{4}$	25	0	0		23	17	$6\frac{1}{2}$	
300	19	12	1	18	15	0		17	17	$22\frac{7}{8}$	
200	13	1	$8\frac{5}{8}$	12	10	0		11	18	$15\frac{1}{4}$	
100	6	10	$16\frac{3}{8}$	6	5	0		5	19	$7\frac{3}{8}$	
90	5	17	$14\frac{3}{4}$	5	12	12		5	7	$9\frac{1}{4}$	
80	5	4	13	5	0	0		4	15	$10\frac{7}{8}$	
70	4	11	$11\frac{1}{2}$	4	7	12		4	3	$12\frac{1}{2}$	
60	3	18	$9\frac{5}{8}$	3	15	0		3	11	$14\frac{1}{8}$	
50	3	5	$8\frac{1}{8}$	3	2	12		2	19	$15\frac{7}{8}$	
40	2	12	$6\frac{1}{2}$	2	10	0		2	7	$17\frac{1}{2}$	
30	1	19	$4\frac{7}{8}$	1	17	12		1	15	$19\frac{1}{8}$	
20	1	6	$3\frac{1}{4}$	1	5	0		1	3	$20\frac{3}{4}$	
10	0	13	$1\frac{5}{8}$	0	12	12		0	11	$22\frac{3}{4}$	
9	0	11	$18\frac{3}{8}$	0	11	6		0	10	$17\frac{3}{4}$	
8	0	10	$10\frac{7}{8}$	0	10	0		0	9	$13\frac{7}{8}$	
7	0	9	$3\frac{1}{2}$	0	8	18		0	8	$8\frac{1}{2}$	
6	0	7	$20\frac{1}{4}$	0	7	12		0	7	$3\frac{7}{8}$	
5	0	6	$12\frac{3}{4}$	0	6	6		0	5	$23\frac{1}{8}$	
4	0	5	$5\frac{3}{8}$	0	5	0		0	4	$18\frac{1}{2}$	
3	0	3	$2\frac{7}{8}$	0	3	18		0	3	$13\frac{7}{8}$	
2	0	2	$14\frac{5}{8}$	0	2	12		0	2	$9\frac{1}{4}$	
I oz.	0	1	$7\frac{3}{8}$	0	1	6		0	1	$4\frac{5}{8}$	
19	0	1	$5\frac{3}{4}$	0	1	$4\frac{1}{2}$		0	1	$3\frac{1}{4}$	
17	0	1	$2\frac{5}{8}$	0	1	$1\frac{1}{2}$		0	1	0	
13	0	0	$20\frac{3}{8}$	0	0	$19\frac{1}{2}$		0	0	$18\frac{3}{4}$	
11	0	0	$17\frac{1}{4}$	0	0	$16\frac{1}{2}$		0	0	$15\frac{3}{4}$	
10	0	0	$15\frac{5}{8}$	0	0	15		0	0	$14\frac{3}{8}$	
9	0	0	$14\frac{1}{8}$	0	0	$13\frac{1}{2}$		0	0	$12\frac{7}{8}$	
8	0	0	$12\frac{1}{2}$	0	0	12		0	0	$11\frac{1}{2}$	
7	0	0	11	0	0	$10\frac{1}{2}$		0	0	10	
6	0	0	$9\frac{3}{8}$	0	0	9		0	0	$8\frac{5}{8}$	
5	0	0	$7\frac{7}{8}$	0	0	$7\frac{1}{2}$		0	0	$7\frac{1}{8}$	
4	0	0	$5\frac{3}{4}$	0	0	6		0	0	$5\frac{3}{4}$	
3	0	0	$4\frac{3}{4}$	0	0	$4\frac{1}{2}$		0	0	$4\frac{1}{4}$	
2	0	0	$3\frac{1}{8}$	0	0	3		0	0	$2\frac{7}{8}$	
I dwt.	0	0	$1\frac{5}{8}$	0	0	$1\frac{1}{2}$		0	0	$1\frac{3}{8}$	
$\frac{1}{2}$	0	0	$0\frac{3}{4}$	0	0	$0\frac{3}{4}$		0	0	0	

i tar i gr				i tar $\frac{3}{4}$ gr.				i tar $\frac{1}{2}$ gr.			
oz.	oz.	dwt	gr.	oz.	dwt	gr.		oz.	dwt	gr.	
500	28	8	$4\frac{3}{8}$	26	19	$18\frac{1}{2}$		25	11	$9\frac{3}{4}$	
400	22	14	$14\frac{1}{4}$	21	11	$19\frac{5}{8}$		20	9	$2\frac{1}{8}$	
300	17	0	$22\frac{5}{8}$	16	3	$20\frac{3}{4}$		5	6	$19\frac{5}{8}$	
200	11	7	$7\frac{1}{8}$	10	15	$21\frac{7}{8}$		10	4	$13\frac{1}{8}$	
100	5	13	$15\frac{5}{8}$	5	7	$22\frac{7}{8}$		5	2	$6\frac{1}{2}$	
90	5	2	$6\frac{3}{4}$	4	17	$3\frac{7}{8}$		4	12	$1\frac{1}{8}$	
80	4	10	22	4	6	$8\frac{3}{4}$		4	1	$19\frac{3}{4}$	
70	3	19	$13\frac{1}{4}$	3	15	$13\frac{5}{8}$		3	11	$14\frac{1}{8}$	
60	3	8	$4\frac{1}{2}$	3	4	$18\frac{1}{2}$		3	1	$8\frac{3}{4}$	
50	2	16	$19\frac{3}{4}$	2	13	$11\frac{1}{2}$		2	11	$3\frac{1}{4}$	
40	2	5	11	2	3	$4\frac{3}{8}$		2	0	$21\frac{7}{8}$	
30	1	14	$2\frac{1}{4}$	1	12	$9\frac{1}{4}$		1	10	$16\frac{3}{8}$	
20	1	2	$17\frac{1}{2}$	1	1	$14\frac{1}{8}$		1	0	$10\frac{7}{8}$	
10	0	11	$8\frac{3}{4}$	0	10	$19\frac{1}{8}$		0	10	$5\frac{1}{2}$	
9	0	10	$2\frac{1}{2}$	0	9	$17\frac{1}{8}$		0	9	$4\frac{7}{8}$	
8	0	9	$2\frac{1}{4}$	0	8	$15\frac{1}{4}$		0	8	$4\frac{3}{8}$	
7	0	7	23	0	7	$13\frac{3}{8}$		0	7	$3\frac{7}{8}$	
6	0	6	$19\frac{3}{4}$	0	6	$11\frac{1}{2}$		0	6	$3\frac{1}{4}$	
5	0	5	$16\frac{5}{8}$	0	5	$9\frac{1}{2}$		0	5	$2\frac{1}{4}$	
4	0	4	$13\frac{1}{8}$	0	4	$7\frac{5}{8}$		0	4	$2\frac{1}{8}$	
3	0	3	$9\frac{7}{8}$	0	3	$5\frac{3}{4}$		0	3	$1\frac{1}{8}$	
2	0	2	$6\frac{1}{2}$	0	2	$3\frac{7}{8}$		0	2	$1\frac{1}{8}$	
I. oz.	0	1	$3\frac{1}{4}$	0	1	$1\frac{7}{8}$		0	1	$0\frac{1}{2}$	
19	0	1	$1\frac{7}{8}$	0	1	$0\frac{5}{8}$		0	0	$23\frac{3}{8}$	
17	0	0	$23\frac{1}{4}$	0	0	22		0	0	$20\frac{7}{8}$	
13	0	0	$17\frac{3}{4}$	0	0	$16\frac{7}{8}$		0	0	16	
11	0	0	15	0	0	$14\frac{1}{4}$		0	0	$13\frac{1}{2}$	
10	0	0	$13\frac{5}{8}$	0	0	13		0	0	$12\frac{1}{4}$	
9	0	0	$12\frac{1}{4}$	0	0	$11\frac{5}{8}$		0	0	11	
8	0	0	$10\frac{7}{8}$	0	0	$10\frac{3}{8}$		0	0	$9\frac{7}{8}$	
7	0	0	$9\frac{1}{2}$	0	0	$9\frac{1}{8}$		0	0	$8\frac{5}{8}$	
6	0	0	$8\frac{1}{8}$	0	0	$7\frac{3}{4}$		0	0	$7\frac{3}{8}$	
5	0	0	$6\frac{7}{8}$	0	0	$6\frac{1}{2}$		0	0	$6\frac{1}{8}$	
4	0	0	$5\frac{1}{2}$	0	0	$5\frac{1}{8}$		0	0	$4\frac{7}{8}$	
3	0	0	$4\frac{1}{8}$	0	0	$3\frac{3}{8}$		0	0	$3\frac{5}{8}$	
2	0	0	$2\frac{3}{4}$	0	0	$2\frac{3}{8}$		0	0	$2\frac{1}{2}$	
Idt.	0	0	$1\frac{3}{8}$	0	0	$1\frac{1}{4}$		0	0	$1\frac{1}{4}$	
$\frac{1}{2}$	0	0	$0\frac{3}{4}$	0	0	$0\frac{5}{8}$		0	0	$0\frac{5}{8}$	

i car $\frac{1}{4}$ gr				i car.				iiij $\frac{3}{4}$ gr			
oz.	oz.	dwt	gr.	oz.	dwt	gr.	oz.	dwt	gr.		
500	24	2	22 $\frac{7}{8}$	22	14	13 $\frac{1}{8}$	21	6	3 $\frac{1}{4}$		
400	19	6	8 $\frac{3}{4}$	8	3	15 $\frac{1}{4}$	17	0	21 $\frac{3}{4}$		
300	14	9	18 $\frac{1}{2}$	13	12	17 $\frac{1}{2}$	12	15	16 $\frac{3}{8}$		
200	9	13	4 $\frac{3}{8}$	9	1	19 $\frac{5}{8}$	8	10	10 $\frac{7}{8}$		
100	4	16	14 $\frac{1}{8}$	4	10	21 $\frac{7}{8}$	3	5	5 $\frac{1}{2}$		
90	4	6	22 $\frac{3}{8}$	4	1	19 $\frac{1}{4}$	3	16	16 $\frac{7}{8}$		
80	3	17	6 $\frac{1}{2}$	3	12	17 $\frac{1}{2}$	3	8	4 $\frac{3}{8}$		
70	3	7	14 $\frac{3}{4}$	3	3	15 $\frac{1}{4}$	2	19	15 $\frac{3}{4}$		
60	2	17	22 $\frac{7}{8}$	2	14	13 $\frac{5}{8}$	2	11	3 $\frac{1}{4}$		
50	2	8	7 $\frac{1}{8}$	2	5	10 $\frac{7}{8}$	2	2	14 $\frac{3}{4}$		
40	1	18	15 $\frac{1}{4}$	1	16	8 $\frac{3}{4}$	1	14	2 $\frac{1}{8}$		
30	1	8	23 $\frac{1}{2}$	1	7	6 $\frac{1}{2}$	1	5	13 $\frac{5}{8}$		
20	0	19	7 $\frac{5}{8}$	0	18	4 $\frac{1}{8}$	0	17	1 $\frac{1}{8}$		
10	0	9	15 $\frac{5}{8}$	0	9	2 $\frac{1}{2}$	0	8	12 $\frac{1}{2}$		
9	0	8	16 $\frac{5}{8}$	0	8	4 $\frac{3}{8}$	0	7	16 $\frac{1}{8}$		
8	0	7	17 $\frac{1}{2}$	0	7	6 $\frac{1}{2}$	0	6	19 $\frac{5}{8}$		
7	0	6	18 $\frac{1}{8}$	0	6	8 $\frac{3}{4}$	0	5	23 $\frac{1}{8}$		
6	0	5	18 $\frac{7}{8}$	0	5	10 $\frac{7}{8}$	0	5	2 $\frac{3}{4}$		
5	0	4	19 $\frac{7}{8}$	0	4	13 $\frac{1}{8}$	0	4	6 $\frac{1}{4}$		
4	0	3	20 $\frac{3}{4}$	0	3	15 $\frac{1}{4}$	0	3	9 $\frac{3}{4}$		
3	0	2	21 $\frac{1}{2}$	0	2	17 $\frac{1}{2}$	0	2	13 $\frac{3}{8}$		
2	0	1	22 $\frac{3}{8}$	0	1	19 $\frac{5}{8}$	0	1	16 $\frac{7}{8}$		
1 oz.	0	0	23 $\frac{1}{8}$	0	0	21 $\frac{7}{8}$	0	0	20 $\frac{1}{2}$		
19	0	0	22 $\frac{3}{4}$	0	0	20 $\frac{3}{4}$	0	0	19 $\frac{3}{8}$		
17	0	0	19 $\frac{1}{4}$	0	0	18 $\frac{1}{2}$	0	0	17 $\frac{3}{8}$		
13	0	0	15 $\frac{1}{8}$	0	0	14 $\frac{1}{8}$	0	0	13 $\frac{1}{4}$		
11	0	0	12 $\frac{3}{4}$	0	0	12 $\frac{7}{8}$	0	0	11 $\frac{1}{4}$		
10	0	0	11 $\frac{5}{8}$	0	0	10 $\frac{3}{8}$	0	0	10 $\frac{1}{4}$		
9	0	0	10 $\frac{3}{8}$	0	0	9 $\frac{3}{4}$	0	0	9 $\frac{1}{4}$		
8	0	0	9 $\frac{1}{4}$	0	0	8 $\frac{3}{4}$	0	0	8 $\frac{1}{8}$		
7	0	0	8 $\frac{1}{8}$	0	0	7 $\frac{5}{8}$	0	0	7 $\frac{1}{5}$		
6	0	0	7 $\frac{3}{4}$	0	0	6 $\frac{1}{2}$	0	0	6 $\frac{1}{8}$		
5	0	0	5 $\frac{3}{4}$	0	0	5 $\frac{1}{2}$	0	0	5 $\frac{1}{8}$		
4	0	0	4 $\frac{5}{8}$	0	0	4 $\frac{3}{8}$	0	0	4 $\frac{1}{8}$		
3	0	0	3 $\frac{1}{2}$	0	0	3 $\frac{1}{4}$	0	0	3 $\frac{1}{8}$		
2	0	0	2 $\frac{3}{8}$	0	0	2 $\frac{1}{8}$	0	0	2 $\frac{1}{8}$		
1 dwt	0	0	1 $\frac{1}{8}$	0	0	1 $\frac{1}{8}$	0	0	1 $\frac{1}{8}$		
$\frac{1}{2}$	0	0	0 $\frac{5}{8}$	0	0	0 $\frac{1}{2}$	0	0	0 $\frac{1}{2}$		

iii $\frac{1}{2}$ gr.				iii $\frac{1}{4}$ gr.				iii gr.			
oz.	oz.	dwt	gr.	oz.	dwt	gr.		oz.	dwt	gr.	
500	19	17	17 $\frac{1}{2}$	18	9	7 $\frac{5}{8}$		17	0	21 $\frac{7}{8}$	
400	18	18	1 $\frac{7}{8}$	14	15	10 $\frac{7}{8}$		13	12	17 $\frac{1}{2}$	
300	11	18	13 $\frac{3}{8}$	11	1	14 $\frac{1}{8}$		10	4	13 $\frac{1}{8}$	
200	7	19	0 $\frac{7}{8}$	7	13	17 $\frac{1}{2}$		6	16	8 $\frac{3}{4}$	
100	3	19	12 $\frac{1}{2}$	3	13	20 $\frac{3}{4}$		3	8	4 $\frac{3}{8}$	
90	3	11	13 $\frac{3}{4}$	3	6	11 $\frac{1}{2}$		3	1	8 $\frac{3}{4}$	
80	3	3	15	2	19	2 $\frac{1}{8}$		2	14	13 $\frac{1}{8}$	
70	2	15	16	2	11	16 $\frac{7}{8}$		2	7	17 $\frac{1}{2}$	
60	2	7	17 $\frac{1}{8}$	2	4	7 $\frac{5}{8}$		2	0	21 $\frac{7}{8}$	
50	1	19	18 $\frac{1}{4}$	1	16	22 $\frac{3}{8}$		1	14	2 $\frac{1}{8}$	
40	1	11	19 $\frac{1}{2}$	1	9	13 $\frac{1}{8}$		1	7	6 $\frac{1}{2}$	
30	1	3	20 $\frac{1}{2}$	1	2	3 $\frac{7}{8}$		1	0	10 $\frac{7}{8}$	
20	0	15	21 $\frac{3}{4}$	0	14	18 $\frac{1}{2}$		0	13	15 $\frac{1}{4}$	
10	0	7	22 $\frac{7}{8}$	0	7	9 $\frac{1}{4}$		0	6	19 $\frac{3}{4}$	
9	0	7	3 $\frac{3}{4}$	0	6	15 $\frac{1}{4}$		0	6	3 $\frac{1}{4}$	
8	0	6	8 $\frac{3}{4}$	0	5	21 $\frac{7}{8}$		0	5	10 $\frac{7}{8}$	
7	0	5	13 $\frac{5}{8}$	0	5	4 $\frac{3}{8}$		0	4	18 $\frac{1}{2}$	
6	0	4	18 $\frac{1}{2}$	0	4	10 $\frac{3}{8}$		0	4	2 $\frac{1}{8}$	
5	0	3	23 $\frac{3}{8}$	0	3	16 $\frac{5}{8}$		0	3	9 $\frac{7}{8}$	
4	0	3	4 $\frac{3}{8}$	0	2	22 $\frac{7}{8}$		0	2	17 $\frac{1}{2}$	
3	0	2	9 $\frac{1}{4}$	0	2	5 $\frac{1}{8}$		0	2	1 $\frac{1}{8}$	
2	0	1	14 $\frac{1}{8}$	0	1	11 $\frac{1}{2}$		0	1	8 $\frac{3}{4}$	
I oz.	0	0	19 $\frac{1}{8}$	0	0	17 $\frac{3}{4}$		0	0	16 $\frac{3}{8}$	
19	0	0	18 $\frac{1}{8}$	0	0	16 $\frac{7}{8}$		0	0	15 $\frac{1}{2}$	
17	0	0	16 $\frac{1}{4}$	0	0	15 $\frac{1}{8}$		0	0	13 $\frac{7}{8}$	
13	0	0	12 $\frac{3}{8}$	0	0	11 $\frac{1}{2}$		0	0	10 $\frac{5}{8}$	
11	0	0	10 $\frac{1}{2}$	0	0	9 $\frac{3}{4}$		0	0	9	
10	0	0	9 $\frac{1}{2}$	0	0	8 $\frac{7}{8}$		0	0	8 $\frac{1}{8}$	
9	0	0	8 $\frac{5}{8}$	0	0	8		0	0	7 $\frac{3}{8}$	
8	0	0	7 $\frac{5}{8}$	0	0	7 $\frac{1}{8}$		0	0	6 $\frac{1}{2}$	
7	0	0	6 $\frac{5}{8}$	0	0	6 $\frac{1}{4}$		0	0	5 $\frac{3}{4}$	
6	0	0	5 $\frac{3}{4}$	0	0	5 $\frac{3}{8}$		0	0	4 $\frac{7}{8}$	
5	0	0	4 $\frac{3}{4}$	0	0	4 $\frac{3}{8}$		0	0	4 $\frac{1}{8}$	
4	0	0	3 $\frac{7}{8}$	0	0	3 $\frac{1}{2}$		0	0	3 $\frac{1}{4}$	
3	0	0	2 $\frac{7}{8}$	0	0	2 $\frac{5}{8}$		0	0	2 $\frac{1}{2}$	
2	0	0	1 $\frac{7}{8}$	0	0	1 $\frac{4}{8}$		0	0	1 $\frac{5}{8}$	
I dr.	0	0	1	0	0	0 $\frac{7}{8}$		0	0	0 $\frac{7}{8}$	
$\frac{1}{2}$	0	0	0 $\frac{1}{2}$	0	0	0 $\frac{1}{2}$		0	0	0 $\frac{3}{8}$	

11 $\frac{3}{4}$ gr.				11 $\frac{1}{2}$ gr.				11 $\frac{1}{4}$ gr.			
oz.	oz.	dwt	gr.	oz.	dwt	gr.		oz.	dwt	gr.	
500	15	12	12	14	4	4 $\frac{7}{8}$		12	15	16 $\frac{3}{8}$	
400	12	10	0	11	7	8 $\frac{3}{4}$		10	4	13 $\frac{1}{2}$	
300	9	7	12	8	10	12 $\frac{1}{2}$		7	13	9 $\frac{7}{8}$	
200	6	5	0	5	13	16 $\frac{1}{8}$		5	2	6 $\frac{1}{2}$	
100	3	2	12	2	6	20 $\frac{1}{4}$		2	11	3 $\frac{1}{4}$	
90	2	16	6	2	11	3 $\frac{3}{4}$		2	6	0 $\frac{1}{2}$	
80	2	10	0	2	5	11 $\frac{3}{8}$		2	0	21 $\frac{7}{8}$	
70	2	3	18	1	19	18 $\frac{7}{8}$		1	15	19 $\frac{1}{8}$	
60	1	17	12	1	14	2 $\frac{1}{2}$		1	10	16 $\frac{3}{8}$	
50	1	11	6	1	8	10 $\frac{1}{8}$		1	5	13 $\frac{5}{8}$	
40	1	5	0	1	2	17 $\frac{5}{8}$		1	0	10 $\frac{7}{8}$	
30	0	18	18	0	17	1 $\frac{1}{4}$		0	15	8 $\frac{1}{8}$	
20	0	12	12	0	11	8 $\frac{7}{8}$		0	10	5 $\frac{1}{2}$	
10	0	6	6	0	5	16 $\frac{3}{8}$		0	5	2 $\frac{3}{4}$	
9	0	5	15	0	5	2 $\frac{3}{4}$		0	4	14 $\frac{1}{2}$	
8	0	5	0	0	4	13 $\frac{1}{8}$		0	4	2 $\frac{5}{8}$	
7	0	4	9	0	3	23 $\frac{1}{2}$		0	3	13 $\frac{7}{8}$	
6	0	3	18	0	3	9 $\frac{7}{8}$		0	3	1 $\frac{5}{8}$	
5	0	3	3	0	2	2 $\frac{1}{4}$		0	2	13 $\frac{3}{8}$	
4	0	2	12	0	2	6 $\frac{1}{2}$		0	2	1 $\frac{1}{8}$	
3	0	1	21	0	1	16 $\frac{7}{8}$		0	1	12 $\frac{7}{8}$	
2	0	1	6	0	1	3 $\frac{1}{4}$		0	1	0 $\frac{1}{2}$	
1 oz.	0	0	15	0	0	13 $\frac{5}{8}$		0	0	12 $\frac{3}{4}$	
19	0	0	14 $\frac{1}{4}$	0	0	13		0	0	11 $\frac{5}{8}$	
17	0	0	12 $\frac{3}{4}$	0	0	11 $\frac{5}{8}$		0	0	10 $\frac{3}{8}$	
13	0	0	9 $\frac{3}{4}$	0	0	8 $\frac{7}{8}$		0	0	8	
11	0	0	8 $\frac{1}{4}$	0	0	7 $\frac{1}{2}$		0	0	6 $\frac{3}{4}$	
10	0	0	7 $\frac{1}{2}$	0	0	6 $\frac{7}{8}$		0	0	6 $\frac{1}{8}$	
9	0	0	6 $\frac{3}{4}$	0	0	6 $\frac{1}{8}$		0	0	5 $\frac{1}{2}$	
8	0	0	6	0	0	5 $\frac{1}{2}$		0	0	4 $\frac{7}{8}$	
7	0	0	5 $\frac{1}{4}$	0	0	4 $\frac{3}{4}$		0	0	4 $\frac{1}{4}$	
6	0	0	4 $\frac{1}{2}$	0	0	4 $\frac{1}{8}$		0	0	3 $\frac{5}{8}$	
5	0	0	3 $\frac{3}{4}$	0	0	3 $\frac{3}{8}$		0	0	3 $\frac{1}{8}$	
4	0	0	3	0	0	2 $\frac{3}{4}$		0	0	2 $\frac{1}{2}$	
3	0	0	2 $\frac{1}{4}$	0	0	2		0	0	1 $\frac{7}{8}$	
2	0	0	1 $\frac{1}{2}$	0	0	1 $\frac{3}{8}$		0	0	1 $\frac{1}{4}$	
1 dwt.	0	0	0 $\frac{3}{4}$	0	0	0 $\frac{5}{8}$		0	0	0 $\frac{5}{8}$	
1	0	0	0 $\frac{3}{8}$	0	0	0 $\frac{3}{8}$		0	0	0 $\frac{1}{2}$	

11 gr.				1 $\frac{3}{4}$ gr.				1 $\frac{1}{2}$ gr.			
oz.	oz.	dwt	gr.	oz.	dwt	gr.		oz.	dwt	gr.	
500	11	7	6 $\frac{1}{2}$	9	18	20 $\frac{3}{4}$		8	10	10 $\frac{7}{8}$	
400	9	1	19 $\frac{5}{8}$	7	19	0 $\frac{7}{8}$		6	16	8 $\frac{3}{4}$	
300	6	16	8 $\frac{3}{4}$	5	19	16 $\frac{5}{8}$		5	2	6 $\frac{1}{2}$	
200	4	10	21 $\frac{7}{8}$	3	19	12 $\frac{1}{2}$		3	8	4 $\frac{3}{8}$	
100	2	5	10 $\frac{7}{8}$	1	19	18 $\frac{1}{4}$		1	14	2 $\frac{1}{8}$	
90	2	0	21 $\frac{5}{8}$	1	15	18 $\frac{7}{8}$		1	10	16 $\frac{3}{8}$	
80	1	16	8 $\frac{3}{4}$	1	11	19 $\frac{1}{2}$		1	7	6 $\frac{1}{4}$	
70	1	11	19 $\frac{5}{8}$	1	7	20		1	3	20 $\frac{3}{4}$	
60	1	7	6 $\frac{1}{2}$	1	3	20 $\frac{1}{2}$		1	0	10 $\frac{7}{8}$	
50	1	2	17 $\frac{1}{2}$	0	19	21 $\frac{1}{8}$		0	17	1 $\frac{1}{8}$	
40	0	18	4 $\frac{3}{8}$	0	15	21 $\frac{3}{4}$		0	13	15 $\frac{1}{4}$	
30	0	13	15 $\frac{1}{4}$	0	11	22 $\frac{1}{4}$		0	10	5 $\frac{1}{2}$	
20	0	9	2 $\frac{1}{8}$	0	7	22 $\frac{7}{8}$		0	6	19 $\frac{5}{8}$	
10	0	4	13 $\frac{1}{8}$	0	3	23 $\frac{3}{8}$		0	3	9 $\frac{7}{8}$	
9	0	4	2 $\frac{7}{8}$	0	3	13 $\frac{7}{8}$		0	3	1 $\frac{5}{8}$	
8	0	3	15 $\frac{1}{4}$	0	3	4 $\frac{3}{8}$		0	2	17 $\frac{1}{2}$	
7	0	3	4 $\frac{3}{8}$	0	2	18 $\frac{2}{4}$		0	2	9 $\frac{1}{4}$	
6	0	2	17 $\frac{1}{2}$	0	2	9 $\frac{1}{4}$		0	2	1 $\frac{1}{8}$	
5	0	2	6 $\frac{1}{2}$	0	1	23 $\frac{3}{4}$		0	1	16 $\frac{7}{8}$	
4	0	1	19 $\frac{5}{8}$	0	1	14 $\frac{1}{8}$		0	1	8 $\frac{3}{4}$	
3	0	1	8 $\frac{3}{4}$	0	1	4 $\frac{5}{8}$		0	1	0 $\frac{1}{2}$	
2	0	0	21 $\frac{7}{8}$	0	0	19 $\frac{1}{8}$		0	0	16 $\frac{3}{8}$	
1 oz.	0	0	10 $\frac{7}{8}$	0	0	9 $\frac{1}{2}$		0	0	8 $\frac{1}{8}$	
19	0	0	10 $\frac{3}{8}$	0	0	9 $\frac{1}{8}$		0	0	7 $\frac{3}{4}$	
17	0	0	9 $\frac{1}{4}$	0	0	8 $\frac{1}{8}$		0	0	7	
13	0	0	7 $\frac{1}{8}$	0	0	6 $\frac{1}{4}$		0	0	5 $\frac{3}{8}$	
11	0	0	6	0	0	5 $\frac{1}{4}$		0	0	4 $\frac{1}{2}$	
10	0	0	5 $\frac{1}{2}$	0	0	4 $\frac{3}{4}$		0	0	4 $\frac{1}{8}$	
9	0	0	4 $\frac{7}{8}$	0	0	4 $\frac{1}{4}$		0	0	3 $\frac{5}{8}$	
8	0	0	4 $\frac{3}{8}$	0	0	3 $\frac{7}{8}$		0	0	3 $\frac{1}{4}$	
7	0	0	3 $\frac{7}{8}$	0	0	3 $\frac{3}{8}$		0	0	2 $\frac{7}{8}$	
6	0	0	3 $\frac{1}{4}$	0	0	2 $\frac{7}{8}$		0	0	2 $\frac{1}{2}$	
5	0	0	2 $\frac{3}{4}$	0	0	2 $\frac{5}{8}$		0	0	2	
4	0	0	2 $\frac{1}{8}$	0	0	1 $\frac{7}{8}$		0	0	1 $\frac{5}{8}$	
3	0	0	1 $\frac{5}{8}$	0	0	1 $\frac{3}{8}$		0	0	1 $\frac{1}{4}$	
2	0	0	1 $\frac{1}{8}$	0	0	1		0	0	0 $\frac{7}{8}$	
1 dwt.	0	0	0 $\frac{1}{2}$	0	0	0 $\frac{1}{2}$		0	0	0 $\frac{3}{8}$	
$\frac{1}{2}$	0	0	0 $\frac{1}{4}$	0	0	0 $\frac{1}{4}$		0	0	0 $\frac{1}{8}$	

$\frac{1}{4}$ gr.				1 gr.				$\frac{3}{4}$ gr.			
oz.	oz.	dwt.	gr.	oz.	dwt.	gr.		oz.	dwt.	gr.	
500	7	2	$2\frac{1}{2}$	5	3	$15\frac{1}{4}$		4	5	$5\frac{3}{8}$	
400	5	13	$16\frac{3}{8}$	4	10	$21\frac{2}{8}$		3	8	$4\frac{3}{8}$	
300	4	5	$6\frac{1}{4}$	3	8	$4\frac{3}{8}$		2	11	$3\frac{3}{8}$	
200	2	16	$20\frac{1}{8}$	2	5	$10\frac{7}{8}$		1	14	$2\frac{1}{8}$	
100	1	8	$10\frac{1}{8}$	1	2	$17\frac{1}{2}$		0	17	$1\frac{3}{8}$	
90	1	5	$13\frac{7}{8}$	1	0	$10\frac{7}{8}$		0	15	$8\frac{1}{8}$	
80	1	2	$17\frac{5}{8}$	0	18	$4\frac{3}{8}$		0	13	$15\frac{1}{4}$	
70	0	19	$21\frac{1}{2}$	0	15	$21\frac{7}{8}$		0	11	$22\frac{3}{8}$	
60	0	17	$1\frac{1}{4}$	0	13	$15\frac{1}{4}$		0	10	$5\frac{1}{2}$	
50	0	14	5	0	11	$8\frac{3}{4}$		0	8	$12\frac{1}{2}$	
40	0	11	$8\frac{7}{8}$	0	9	$2\frac{1}{8}$		0	6	$19\frac{5}{8}$	
30	0	8	$12\frac{5}{8}$	0	6	$19\frac{5}{8}$		0	5	$2\frac{3}{4}$	
20	0	5	$16\frac{3}{8}$	0	4	$13\frac{1}{8}$		0	3	$9\frac{7}{8}$	
10	0	2	$20\frac{1}{4}$	0	2	$6\frac{1}{2}$		0	1	$16\frac{7}{8}$	
9	0	2	$13\frac{3}{8}$	0	2	$1\frac{5}{8}$		0	1	$12\frac{7}{8}$	
8	0	2	$6\frac{5}{8}$	0	1	$19\frac{5}{8}$		0	1	$8\frac{3}{4}$	
7	0	1	$23\frac{3}{4}$	0	1	$14\frac{1}{4}$		0	1	$4\frac{5}{8}$	
6	0	1	$16\frac{7}{8}$	0	1	$8\frac{3}{4}$		0	1	$0\frac{1}{2}$	
5	0	1	$10\frac{1}{8}$	0	1	$3\frac{3}{8}$		0	0	$20\frac{1}{2}$	
4	0	1	$3\frac{1}{4}$	0	0	$21\frac{7}{8}$		0	0	$16\frac{3}{8}$	
3	0	0	$20\frac{1}{2}$	0	0	$16\frac{3}{8}$		0	0	$12\frac{1}{4}$	
2	0	0	$13\frac{5}{8}$	0	0	$10\frac{7}{8}$		0	0	$8\frac{1}{8}$	
1 oz.	0	0	$6\frac{7}{8}$	0	0	$5\frac{1}{2}$		0	0	$4\frac{1}{8}$	
19	0	0	$6\frac{1}{2}$	0	0	$5\frac{1}{8}$		0	0	$3\frac{7}{8}$	
17	0	0	$5\frac{3}{4}$	0	0	$4\frac{5}{8}$		0	0	$3\frac{1}{2}$	
13	0	0	$4\frac{3}{8}$	0	0	$3\frac{1}{2}$		0	0	$2\frac{5}{8}$	
11	0	0	$3\frac{3}{4}$	0	0	3		0	0	$2\frac{1}{4}$	
10	0	0	$3\frac{3}{8}$	0	0	$2\frac{3}{4}$		0	0	2	
9	0	0	$3\frac{1}{8}$	0	0	$2\frac{1}{2}$		0	0	$1\frac{3}{4}$	
8	0	0	$2\frac{3}{4}$	0	0	$2\frac{1}{8}$		0	0	$1\frac{5}{8}$	
7	0	0	$2\frac{3}{8}$	0	0	$1\frac{7}{8}$		0	0	$1\frac{3}{8}$	
6	0	0	2	0	0	$1\frac{3}{8}$		0	0	$1\frac{1}{4}$	
5	0	0	$1\frac{3}{4}$	0	0	$1\frac{3}{8}$		0	0	1	
4	0	0	$1\frac{3}{8}$	0	0	$1\frac{1}{8}$		0	0	$0\frac{7}{8}$	
3	0	0	1	0	0	$0\frac{7}{8}$		0	0	$0\frac{5}{8}$	
2	0	0	$0\frac{5}{8}$	0	0	$0\frac{1}{2}$		0	0	$0\frac{3}{8}$	
1 dwt.	0	0	$0\frac{3}{8}$	0	0	$0\frac{1}{4}$		0	0	$0\frac{1}{4}$	
$\frac{1}{4}$	0	0	$0\frac{1}{8}$	0	0	$0\frac{1}{8}$		0	0	0	

	$\frac{1}{2}$ gr			$\frac{1}{4}$ gr.			tar. gr.	ca. gr. multi
oz.	oz.	dwt	gr	oz	dwt	gr.		
500	2	16	$9\frac{5}{8}$	1	8	$9\frac{7}{8}$	ij	$0\frac{1}{4}$ 0-2 $\frac{3}{4}$ by 3
400	2	5	$10\frac{7}{8}$	1	2	$17\frac{1}{2}$	ij	$0\frac{3}{4}$ 0-1 $\frac{3}{4}$ by 5
300	1	14	$2\frac{1}{8}$	0	17	$1\frac{1}{8}$	ij	$0\frac{3}{4}$ 0-3 $\frac{1}{4}$ by 3
200	1	2	$17\frac{1}{2}$	0	11	$8\frac{3}{4}$	ij	$0\frac{1}{4}$ 0-1 $\frac{3}{4}$ by 7
100	0	11	$8\frac{3}{4}$	0	5	$16\frac{3}{8}$	ij	$0\frac{3}{4}$ 1-0 $\frac{1}{4}$ by 3
90	0	10	$5\frac{1}{4}$	0	5	$2\frac{3}{4}$	ij	$0\frac{3}{4}$ 0-2 $\frac{3}{4}$ by 5
80	0	9	$2\frac{1}{8}$	0	5	$2\frac{3}{4}$	ij	$0\frac{3}{4}$ 0-2 $\frac{1}{4}$ by 7
70	0	9	$2\frac{1}{8}$	0	4	$13\frac{1}{8}$	ij	$0\frac{1}{4}$ 0-3 $\frac{1}{4}$ by 5
60	0	7	$22\frac{7}{8}$	0	3	$23\frac{1}{2}$	ij	$0\frac{1}{4}$ 0-2 $\frac{3}{4}$ by 6
50	0	6	$19\frac{5}{8}$	0	3	$9\frac{7}{8}$	ij	$0\frac{1}{4}$ 1-0 $\frac{1}{4}$ by 4
40	0	5	$16\frac{3}{8}$	0	2	$20\frac{1}{8}$	ij	$0\frac{1}{4}$ 1-3 $\frac{1}{2}$ by 5
30	0	4	$13\frac{1}{8}$	0	2	$6\frac{1}{2}$	ij	$0\frac{1}{4}$ 0-2 $\frac{1}{4}$ by 8
20	0	3	$9\frac{7}{8}$	0	1	$16\frac{7}{8}$	ij	$0\frac{3}{4}$ 0-3 $\frac{3}{4}$ by 5
10	0	2	$6\frac{1}{2}$	0	1	$3\frac{1}{4}$	ij	$0\frac{3}{4}$ 1-0 $\frac{3}{4}$ by 4
9	0	1	$3\frac{1}{4}$	0	0	$13\frac{5}{8}$	ij	$0\frac{1}{4}$ 0-2 $\frac{3}{4}$ by 7
8	0	1	$0\frac{1}{2}$	0	0	$12\frac{1}{4}$	ij	$0\frac{1}{4}$ 0-3 $\frac{1}{4}$ by 6
7	0	0	$21\frac{7}{8}$	0	0	$10\frac{7}{8}$	v	$0\frac{1}{4}$ 0-2 $\frac{1}{4}$ by 9
6	0	0	$19\frac{1}{8}$	0	0	$9\frac{1}{2}$	v	$0\frac{1}{4}$ 0-3 by 7
5	0	0	$16\frac{3}{8}$	0	0	$8\frac{1}{8}$	v	$0\frac{1}{4}$ 1-0 $\frac{1}{4}$ by 5
4	0	0	$13\frac{5}{8}$	0	0	$6\frac{7}{8}$	v	$0\frac{3}{4}$ 1-3 $\frac{1}{4}$ by 3
3	0	0	$10\frac{7}{8}$	0	0	$5\frac{1}{2}$	v	$0\frac{3}{4}$ 0-2 $\frac{3}{4}$ by 8
2	0	0	$8\frac{1}{8}$	0	0	$4\frac{1}{8}$	v	$0\frac{3}{4}$ 0-3 $\frac{3}{4}$ by 6
1 oz.	0	0	$5\frac{3}{4}$	0	0	$2\frac{3}{4}$	v	$0\frac{3}{4}$ 0-3 $\frac{1}{4}$ by 7
19	0	0	$2\frac{5}{8}$	0	0	$1\frac{3}{8}$	v	$0\frac{3}{4}$ 1-1 $\frac{3}{4}$ by 4
17	0	0	$2\frac{3}{8}$	0	0	$1\frac{1}{4}$	v	$0\frac{3}{4}$ 1-1 by 5
13	0	0	$1\frac{3}{4}$	0	0	$0\frac{7}{8}$	v	$0\frac{1}{2}$ 1-0 $\frac{1}{4}$ by 6
11	0	0	$1\frac{1}{2}$	0	0	$0\frac{3}{4}$	v	$0\frac{1}{4}$ 0-3 $\frac{1}{4}$ by 8
10	0	0	$1\frac{3}{8}$	0	0	$0\frac{5}{8}$	v	$0\frac{1}{4}$ 1-1 $\frac{1}{4}$ by 5
9	0	0	$1\frac{1}{4}$	0	0	$0\frac{5}{8}$	v	$0\frac{1}{4}$ 1-0 $\frac{1}{2}$ by 6
8	0	0	$1\frac{1}{8}$	0	0	$0\frac{5}{8}$	v	$0\frac{1}{2}$ 1-1 $\frac{1}{2}$ by 5
7	0	0	1	0	0	$0\frac{1}{2}$	v	$0\frac{1}{2}$ 1-0 $\frac{3}{4}$ by 6
6	0	0	$0\frac{7}{8}$	0	0	$0\frac{1}{2}$	v	$0\frac{3}{4}$ 1-1 $\frac{3}{4}$ by 5
5	0	0	$0\frac{5}{8}$	0	0	$0\frac{3}{8}$	v	$0\frac{1}{4}$ 0-3 $\frac{1}{4}$ by 9
4	0	0	$0\frac{1}{2}$	0	0	$0\frac{1}{4}$	v	$0\frac{1}{4}$ 1-2 by 5
3	0	0	$0\frac{3}{8}$	0	0	$0\frac{1}{4}$	v	$0\frac{1}{4}$ 1-3 $\frac{3}{4}$ by 4
2	0	0	$0\frac{1}{4}$	0	0	$0\frac{1}{8}$	v	$0\frac{1}{4}$ 1-2 $\frac{1}{4}$ by 5
1 dwt.	0	0	$0\frac{1}{8}$	0	0	$0\frac{1}{8}$	v	$0\frac{1}{2}$ 1-1 $\frac{1}{4}$ by 6
$\frac{1}{2}$	0	0	$0\frac{1}{8}$	0	0	0	v	$0\frac{1}{2}$ 1-2 $\frac{1}{2}$ by 5
							v	$0\frac{1}{2}$ 1-1 $\frac{1}{2}$ by 6

Use of the GOLD TABLES.

The fineness from 2 carats to $\frac{1}{4}$ of a carat grain stands at the top of the page, and the weight from 500 ounces to one half pennyweight on the side, and where they meet is the quantity of standard; thus against 200 ounces, and under 1 car. $1\frac{1}{4}$ gr. is 11 oz. 18 dwt. $15\frac{1}{4}$ gr. against 70 oz. is 4 oz. 3 dwt. $12\frac{1}{2}$ gr. against 3 oz. is 3 dwt. $13\frac{7}{8}$ gr. and against 4 dwt. is $5\frac{3}{4}$ gr. which is the standard contained in each, and by adding them together we have 16 oz. 6 dwt. $9\frac{1}{2}$ gr. which is the quantity in 273 oz. 4 dwt. of that fineness.

The standard in any fineness between 2 car. and 4 car. (except the $\frac{1}{4}$ grains) is obtained by halving the given fineness, taking the standard out of the table under that $\frac{1}{2}$ fineness, and then doubling of it, as if the given fineness was 2 car. $3\frac{1}{2}$ gr. the $\frac{1}{2}$ fineness of which is 1 car. $1\frac{3}{4}$ gr. against 500 oz. of which stands 32 oz. 13 dwt. $9\frac{5}{8}$ gr. against 30 ounces is 1 oz. 19 dwt. $4\frac{7}{8}$ gr. and against 19 dwt. is 1 dwt. $5\frac{3}{4}$ gr. any of which being doubled separately will give the quantity of standard, as 65 oz. 6 dwt. $19\frac{1}{4}$ gr. for that in 500 oz. 3 oz. 18 dwt. $9\frac{3}{4}$ gr. for that in 30 oz. and 2 dwt. $11\frac{1}{2}$ gr. for that in 19 dwt. and if they are added together and then doubled, we shall have

34 oz.

34 oz 13 dwt. $20\frac{1}{4}$ gr. for the standard in 530 oz. 19 dwt. of that fineness.

In like manner the standard in any of the finenesses in the last column of the table, may be found by multiplying those set against them by 3, 4, 5, &c. and universally if the quantity under 1 car. be multiplied by the number of carats, and divided by the aliquot parts of a carat for the grains and quarters, it will give the quantity of standard required, as appears by the work in explaining the use of the silver tables in page 97.

The finenesses we have given examples in, are the absolute ones, or whose relation to standard is not considered, but it is generally the reports or relative finenesses, which are collected out of these tables, exactly in the same manner as those above; the only difference being in that they must be added to the gross weight if better, and subtracted from it if worse than standard. Thus if the 273 oz. 4 dwt. above be better 1 car. $1\frac{1}{4}$ gr. there will be 289 oz. 10 dwt. $9\frac{1}{2}$ gr. of standard in it, but if worse, but 256 oz. 17 dwt. $14\frac{1}{2}$ gr. and 530 oz. 19 dwt. Wo. 2-car. $3\frac{1}{2}$ gr. contains 496 oz. 6 dwt. $3\frac{3}{4}$ gr. of standard.

TABLES

T A B L E S

OF THE

Q U A N T I T Y

OF

S I L V E R,

From 18 Dwt. to Half a Pennyweight better, to be added to one Ounce of Silver, from Half a Pennyweight to 20 Dwt. worse, to make it Standard.

Zviiij d. 1/8.				Zvij d. 1/8.				Zviij d. 1/8.			
Wo.	oz.	dt.	gr.	Z.	dt.	gr.		oz.	d.	gr.	
i 05	1	2	5 ³ / ₈	1	2	20 ⁵ / ₈		1	3	12 ¹ / ₂	
zic 06	1	1	16	1	2	6 ⁷ / ₈		1	2	22 ⁷ / ₈	
zic 07	1	1	2 ⁵ / ₈	1	1	17 ¹ / ₈		1	2	8 ¹ / ₂	
zviiij 08	1	0	13 ³ / ₈	1	1	3 ³ / ₈		1	1	18 ³ / ₈	
zviiij 09	1	0	0	1	0	13 ³ / ₄		1	1	4 ¹ / ₄	
zviiij 10	0	19	10 ⁵ / ₈	1	0	0		1	0	14 ¹ / ₈	
zviiij 11	0	18	2 ³ / ₈	0	19	10 ¹ / ₄		1	0	0	
zviiij 12	0	18	8	0	18	20 ⁵ / ₈		0	19	9 ⁷ / ₈	
zviiij 13	0	17	18 ⁵ / ₈	0	18	6 ⁷ / ₈		0	18	19 ³ / ₄	
zviiij 14	0	17	5 ³ / ₈	0	17	17 ¹ / ₈		0	18	5 ⁵ / ₈	
zviiij 15	0	16	16	0	17	3 ³ / ₈		0	17	15 ¹ / ₂	
zviiij 16	0	16	2 ⁵ / ₈	0	16	13 ¹ / ₈		0	17	1 ³ / ₈	
zviiij 17	0	15	13 ³ / ₈	0	16	0		0	16	11 ¹ / ₄	
zviiij 18	0	15	0	0	15	10 ¹ / ₄		0	15	21 ¹ / ₈	
zviiij 19	0	14	10 ⁵ / ₈	0	14	20 ⁵ / ₈		0	15	7 ¹ / ₈	
zviiij 20	0	13	21 ³ / ₈	0	14	6 ⁷ / ₈		0	14	17	
zviiij 21	0	13	8	0	13	17 ¹ / ₈		0	14	2 ⁷ / ₈	
zviiij 22	0	12	18 ⁵ / ₈	0	13	3 ³ / ₈		0	13	12 ¹ / ₄	
zviiij 23	0	12	5 ³ / ₈	0	12	13 ³ / ₄		0	12	22 ⁵ / ₈	
zviiij 24	0	11	16	0	12	0		0	12	8 ¹ / ₂	
zviiij 25	0	11	2 ⁵ / ₈	0	11	10 ¹ / ₄		0	11	18 ³ / ₈	
zviiij 26	0	10	13 ³ / ₈	0	10	20 ⁵ / ₈		0	11	4 ¹ / ₄	
zviiij 27	0	10	0	0	10	6 ⁷ / ₈		0	10	14 ¹ / ₈	
zviiij 28	0	9	10 ⁵ / ₈	0	9	17 ¹ / ₈		0	10	0	
zviiij 29	0	8	21 ³ / ₈	0	9	3 ³ / ₈		0	9	9 ⁷ / ₈	
zviiij 30	0	8	8	0	8	13 ³ / ₄		0	8	19 ³ / ₄	
zviiij 31	0	7	18 ⁵ / ₈	0	8	0		0	8	5 ⁵ / ₈	
zviiij 32	0	7	5 ³ / ₈	0	7	10 ¹ / ₄		0	7	15 ¹ / ₂	
zviiij 33	0	6	16	0	6	20 ⁵ / ₈		0	7	1 ³ / ₈	
zviiij 34	0	6	2 ⁵ / ₈	0	6	6 ⁷ / ₈		0	6	11 ¹ / ₄	
zviiij 35	0	5	13 ³ / ₈	0	5	17 ¹ / ₈		0	5	21 ¹ / ₈	
zviiij 36	0	5	0	0	5	3 ³ / ₈		0	5	7 ¹ / ₈	
zviiij 37	0	4	10 ⁵ / ₈	0	4	13 ³ / ₄		0	4	17 ¹ / ₈	
zviiij 38	0	3	21 ³ / ₈	0	4	0		0	4	2 ⁷ / ₈	
zviiij 39	0	3	8	0	3	10 ¹ / ₄		0	3	12 ³ / ₄	
zviiij 40	0	2	18 ⁵ / ₈	0	2	20 ⁵ / ₈		0	2	22 ⁵ / ₈	
zviiij 41	0	2	5 ³ / ₈	0	2	6 ⁷ / ₈		0	2	8 ¹ / ₂	
zviiij 42	0	1	16	0	1	17 ¹ / ₈		0	1	18 ³ / ₈	
zviiij 43	0	1	2 ⁵ / ₈	0	1	3 ³ / ₈		0	1	4 ¹ / ₄	
zviiij 44	0	0	13 ¹ / ₈	0	0	13 ³ / ₄		0	0	14 ¹ / ₈	

	ᐅᐅ ᐅᐅᐅ				ᐅᐅ ᐅᐅ				ᐅᐅ ᐅᐅ ᐅ		
Wo.	oz	dt.	gr.		oz	dt.	gr.		oz	dt.	gr.
i 05.	1	4	5 ⁷ / ₈		1	5	0		1	5	19 ³ / ₈
ᐅᐅ ᐅ	1	3	15 ¹ / ₄		1	4	9		1	5	3 ⁷ / ₈
ᐅᐅ	1	3	0 ³ / ₄		1	3	18		1	4	12 ³ / ₈
ᐅᐅᐅᐅ	1	2	10 ¹ / ₈		1	3	3		1	3	20 ⁷ / ₈
ᐅᐅᐅ	1	1	19 ⁵ / ₈		1	2	12		1	3	5 ³ / ₈
ᐅᐅᐅ ᐅ	1	1	5 ¹ / ₈		1	1	21		1	2	13 ⁷ / ₈
ᐅᐅᐅ	1	0	14 ¹ / ₂		1	1	6		1	1	22 ¹ / ₂
ᐅᐅ ᐅ	1	0	0		1	0	15		1	1	7
ᐅᐅ	0	19	9 ¹ / ₂		1	0	0		1	0	15 ¹ / ₂
ᐅᐅ ᐅ	0	18	18 ⁷ / ₈		0	19	9		1	0	0
ᐅᐅ	0	18	4 ³ / ₈		0	18	18		0	19	8 ¹ / ₂
ᐅᐅᐅ ᐅ	0	17	13 ³ / ₄		0	18	3		0	18	17
ᐅᐅᐅ	0	16	23 ¹ / ₄		0	17	12		0	18	1 ¹ / ₂
ᐅᐅᐅ ᐅ	0	16	8 ³ / ₄		0	16	21		0	17	10 ¹ / ₈
ᐅᐅᐅ	0	15	18 ¹ / ₈		0	16	6		0	16	18 ⁵ / ₈
ᐅᐅ ᐅ	0	15	3 ⁵ / ₈		0	15	15		0	16	3 ¹ / ₈
ᐅᐅ	0	14	13 ¹ / ₈		0	15	0		0	15	11 ⁵ / ₈
ᐅᐅ ᐅ	0	13	22 ¹ / ₂		0	14	9		0	14	20 ¹ / ₈
ᐅᐅ	0	13	8		0	13	18		0	14	4 ⁵ / ₈
ᐅ ᐅ	0	12	17 ¹ / ₂		0	13	3		0	13	13 ¹ / ₈
ᐅ	0	12	2 ⁷ / ₈		0	12	12		0	12	21 ⁵ / ₈
iᐅ ᐅ	0	11	12 ³ / ₈		0	11	21		0	12	6 ¹ / ₄
iᐅ	0	10	21 ⁷ / ₈		0	11	6		0	11	14 ³ / ₄
ᐅᐅᐅ ᐅ	0	10	7 ¹ / ₄		0	10	15		0	10	23 ¹ / ₄
ᐅᐅᐅ	0	9	16 ³ / ₄		0	10	0		0	10	7 ³ / ₄
ᐅᐅᐅ ᐅ	0	9	2 ¹ / ₈		0	9	9		0	9	16 ¹ / ₄
ᐅᐅᐅ	0	8	11 ⁵ / ₈		0	8	18		0	9	0 ³ / ₄
ᐅᐅ ᐅ	0	7	21 ¹ / ₈		0	8	3		0	8	9 ¹ / ₄
ᐅᐅ	0	7	6 ¹ / ₂		0	7	12		0	7	17 ³ / ₄
ᐅ ᐅ	0	6	16		0	6	21		0	7	2 ¹ / ₄
ᐅ	0	6	1 ¹ / ₂		0	6	6		0	6	10 ⁷ / ₈
ᐅᐅᐅ ᐅ	0	5	10 ⁷ / ₈		0	5	15		0	5	19 ³ / ₈
ᐅᐅᐅ	0	4	20 ³ / ₈		0	5	0		0	5	3 ⁷ / ₈
ᐅᐅᐅ ᐅ	0	4	5 ⁷ / ₈		0	4	9		0	4	12 ³ / ₈
ᐅᐅᐅ	0	3	15 ¹ / ₄		0	3	18		0	3	20 ⁷ / ₈
ᐅᐅ ᐅ	0	3	0 ³ / ₄		0	3	3		0	3	5 ³ / ₈
ᐅᐅ	0	2	10 ¹ / ₈		0	2	12		0	2	13 ⁷ / ₈
i ᐅ	0	1	19 ⁵ / ₈		0	1	21		0	1	22 ¹ / ₂
i	0	1	5 ¹ / ₄		0	1	6		0	1	7
ᐅ	0	0	14 ¹ / ₂		0	0	15		0	0	15 ³ / ₂

Ἦβ δμ				Ἦιι δμ				Ἦιι δμ			
Wo.	oz.	dt.	gr.	oz.	dt.	gr.		oz.	dt.	gr.	
ἰ οζ	1	6	16	1	7	14 $\frac{1}{8}$		1	8	13 $\frac{3}{4}$	
Ἦβ δ	1	6	0	1	6	21 $\frac{1}{2}$		1	7	20 $\frac{7}{8}$	
Ἦβ	1	5	8	1	6	5		1	7	3 $\frac{3}{8}$	
Ἦβιι δ	1	4	16	1	5	12 $\frac{3}{8}$		1	6	10 $\frac{1}{4}$	
Ἦβιι	1	4	0	1	4	19 $\frac{7}{8}$		1	5	17 $\frac{1}{8}$	
Ἦβι δ	1	3	8	1	4	3 $\frac{1}{4}$		1	5	0	
Ἦβι	1	2	16	1	3	10 $\frac{3}{4}$		1	4	6 $\frac{7}{8}$	
Ἦβ δ	1	2	0	1	2	18 $\frac{1}{4}$		1	3	13 $\frac{3}{4}$	
Ἦβ	1	1	8	1	2	1 $\frac{5}{8}$		1	2	20 $\frac{5}{8}$	
Ἦβ δ	1	0	16	1	1	9 $\frac{1}{8}$		1	2	3 $\frac{3}{8}$	
Ἦβ	1	0	0	1	0	16 $\frac{1}{2}$		1	1	10 $\frac{1}{4}$	
Ἦβι δ	1	19	8	1	0	0		1	0	17 $\frac{1}{8}$	
Ἦβι	0	18	16	0	19	7 $\frac{1}{2}$		1	0	0	
Ἦβ δ	0	18	0	0	18	14 $\frac{7}{8}$		0	19	6 $\frac{7}{8}$	
Ἦβ	0	17	8	0	17	22 $\frac{1}{4}$		0	18	3 $\frac{1}{2}$	
Ἦβ δ	0	16	16	0	17	5 $\frac{3}{4}$		0	17	20 $\frac{5}{8}$	
Ἦβ	0	16	0	0	16	13 $\frac{1}{4}$		0	17	3 $\frac{1}{4}$	
Ἦβ δ	0	15	8	0	15	20 $\frac{5}{8}$		0	16	10 $\frac{1}{4}$	
Ἦβ	0	14	16	0	15	4 $\frac{1}{3}$		0	15	17 $\frac{1}{8}$	
Ἦβ δ	0	14	0	0	14	11 $\frac{1}{2}$		0	15	0	
Ἦβ	0	13	8	0	13	19		0	14	6 $\frac{7}{8}$	
Ἦβ δ	0	12	16	0	13	2 $\frac{1}{2}$		0	13	13 $\frac{3}{4}$	
ἰ 2	0	12	0	0	12	9 $\frac{7}{8}$		0	12	20 $\frac{5}{8}$	
Ἦβι δ	0	11	8	0	11	17 $\frac{3}{8}$		0	12	3 $\frac{3}{8}$	
Ἦβι	0	10	16	0	11	0 $\frac{3}{4}$		0	11	10 $\frac{1}{4}$	
Ἦβ δ	0	10	0	0	10	8 $\frac{1}{4}$		0	10	17 $\frac{1}{8}$	
Ἦβ	0	9	8	0	9	15 $\frac{3}{4}$		0	10	0	
Ἦβ δ	0	8	16	0	8	23 $\frac{1}{8}$		0	9	6 $\frac{7}{8}$	
Ἦβ	0	8	0	0	8	6 $\frac{5}{8}$		0	8	13 $\frac{3}{4}$	
Ἦβ δ	0	7	8	0	7	14 $\frac{1}{3}$		0	7	20 $\frac{5}{8}$	
Ἦβ	0	6	16	0	6	21 $\frac{1}{2}$		0	7	3 $\frac{3}{8}$	
Ἦβι δ	0	6	0	0	6	5		0	6	10 $\frac{1}{4}$	
Ἦβι	0	5	8	0	5	12 $\frac{3}{8}$		0	5	17 $\frac{1}{8}$	
Ἦβ δ	0	4	16	0	4	19 $\frac{7}{8}$		0	5	0	
Ἦβ	0	4	0	0	4	3 $\frac{1}{4}$		0	4	6 $\frac{7}{8}$	
Ἦβ δ	0	3	8	0	3	10 $\frac{3}{4}$		0	3	13 $\frac{3}{4}$	
Ἦβ	0	2	16	0	2	18 $\frac{1}{4}$		0	2	20 $\frac{5}{8}$	
Ἦβ δ	0	2	0	0	2	1 $\frac{3}{8}$		0	2	3 $\frac{3}{8}$	
Ἦβ	0	1	8	0	1	9 $\frac{1}{8}$		0	1	10 $\frac{1}{4}$	
Ἦβ	0	0	16	0	0	16 $\frac{1}{2}$		0	0	17 $\frac{1}{8}$	

Cii dmo. 8				Ciii dmo. 1				Cij dmo. 8			
Wo. b	oz	dt.	gr.	oz	dt.	gr.		oz	dt.	gr.	
i 05	1	9	15 $\frac{1}{8}$	1	10	18 $\frac{1}{2}$		1	12	0	
ii 06	1	8	21 $\frac{3}{8}$	1	10	0		1	11	4 $\frac{7}{8}$	
iii 07	1	8	3 $\frac{1}{2}$	1	9	5 $\frac{1}{2}$		1	10	9 $\frac{5}{8}$	
iiii 08	1	7	9 $\frac{3}{4}$	1	8	11 $\frac{1}{8}$		1	9	14 $\frac{3}{8}$	
v 09	1	6	16	1	7	16 $\frac{5}{8}$		1	8	19 $\frac{1}{4}$	
vi 10	1	5	22 $\frac{1}{4}$	1	6	22 $\frac{1}{8}$		1	8	0	
vii 11	1	5	4 $\frac{3}{8}$	1	6	3 $\frac{3}{4}$		1	7	4 $\frac{7}{8}$	
viii 12	1	4	10 $\frac{5}{8}$	1	5	9 $\frac{1}{4}$		1	6	9 $\frac{5}{8}$	
ix 13	1	3	16 $\frac{7}{8}$	1	4	14 $\frac{3}{4}$		1	5	14 $\frac{3}{8}$	
x 14	1	2	23 $\frac{1}{8}$	1	3	20 $\frac{1}{4}$		1	4	19 $\frac{1}{4}$	
xi 15	1	2	5 $\frac{3}{8}$	1	3	1 $\frac{7}{8}$		1	4	0	
xii 16	1	1	11 $\frac{1}{2}$	1	2	7 $\frac{3}{8}$		1	3	4 $\frac{7}{8}$	
xiii 17	1	0	17 $\frac{3}{4}$	1	1	12 $\frac{7}{8}$		1	2	9 $\frac{5}{8}$	
xiv 18	1	0	0	1	0	18 $\frac{1}{2}$		1	1	14 $\frac{3}{8}$	
xv 19	0	19	6 $\frac{1}{4}$	1	0	0		1	0	19 $\frac{1}{4}$	
xvi 20	0	18	21 $\frac{3}{8}$	C	19	5 $\frac{1}{2}$		1	0	0	
xvii 21	0	18	2 $\frac{3}{8}$	0	18	11 $\frac{1}{8}$		1	19	4 $\frac{7}{8}$	
xviii 22	0	17	0 $\frac{7}{8}$	0	17	16 $\frac{5}{8}$		0	18	9 $\frac{5}{8}$	
xix 23	0	16	7 $\frac{1}{8}$	0	16	22 $\frac{1}{8}$		0	17	14 $\frac{3}{8}$	
xx 24	0	15	13 $\frac{1}{8}$	0	16	3 $\frac{3}{4}$		0	16	19 $\frac{1}{4}$	
xxi 25	0	14	19 $\frac{1}{2}$	0	15	9 $\frac{1}{4}$		0	16	0	
xxii 26	0	14	1 $\frac{3}{8}$	0	14	14 $\frac{3}{4}$		0	15	4 $\frac{7}{8}$	
xxiii 27	0	13	8	0	13	20 $\frac{1}{4}$		0	14	9 $\frac{5}{8}$	
xxiv 28	0	12	14 $\frac{1}{4}$	0	13	1 $\frac{7}{8}$		0	13	14 $\frac{3}{8}$	
xxv 29	0	11	20 $\frac{3}{8}$	0	12	7 $\frac{3}{8}$		0	12	19 $\frac{1}{4}$	
xxvi 30	0	11	2 $\frac{3}{8}$	0	11	12 $\frac{7}{8}$		0	12	0	
xxvii 31	0	10	8 $\frac{1}{8}$	0	10	18 $\frac{1}{2}$		0	11	4 $\frac{7}{8}$	
xxviii 32	0	9	15 $\frac{1}{8}$	0	10	0		C	10	9 $\frac{5}{8}$	
xxix 33	0	8	21 $\frac{3}{8}$	0	9	5 $\frac{1}{2}$		0	9	14 $\frac{3}{8}$	
xxx 34	0	8	3 $\frac{1}{2}$	0	8	11 $\frac{1}{8}$		0	8	19 $\frac{1}{4}$	
xxxi 35	0	7	9 $\frac{3}{4}$	0	7	16 $\frac{5}{8}$		0	8	0	
xxxii 36	0	6	16	0	6	22 $\frac{1}{8}$		0	7	4 $\frac{7}{8}$	
xxxiii 37	0	5	22 $\frac{1}{4}$	0	6	3 $\frac{3}{4}$		0	6	9 $\frac{5}{8}$	
xxxiv 38	0	5	4 $\frac{3}{8}$	0	5	9 $\frac{1}{4}$		C	5	14 $\frac{3}{8}$	
xxxv 39	0	4	10 $\frac{5}{8}$	0	4	14 $\frac{3}{4}$		0	4	19 $\frac{1}{4}$	
xxxvi 40	0	3	16 $\frac{7}{8}$	0	3	20 $\frac{1}{4}$		0	4	0	
xxxvii 41	0	2	23 $\frac{1}{8}$	0	3	1 $\frac{7}{8}$		0	3	4 $\frac{7}{8}$	
xxxviii 42	0	2	5 $\frac{3}{8}$	0	2	7 $\frac{3}{8}$		0	2	9 $\frac{5}{8}$	
xxxix 43	0	1	11 $\frac{1}{2}$	0	1	12 $\frac{7}{8}$		0	1	14 $\frac{3}{8}$	
xl 44	0	0	17 $\frac{3}{4}$	0	0	18 $\frac{1}{2}$		0	0	19 $\frac{1}{4}$	

Zij 5 Mb				Zij 5 Mb 58				Zij 5 Mb			
Wo.	oz	dt.	gr	oz	dt.	gr		oz	dt.	gr.	
i 03.	1	13	8	1	14	18 ³ / ₄		1	16	2 ¹ / ₈	
zic 58	1	12	12	1	13	21 ⁷ / ₈		1	15	10 ⁷ / ₈	
zic	1	11	16	1	13	1		1	14	13 ¹ / ₈	
zviii 58	1	10	20	1	12	4 ¹ / ₈		1	13	15 ¹ / ₄	
zviii	1	10	0	1	11	7 ¹ / ₄		1	12	17 ¹ / ₂	
zviij 58	1	9	4	1	10	10 ³ / ₈		1	11	19 ⁵ / ₈	
zviij	1	8	8	1	9	13 ⁵ / ₈		1	10	21 ⁷ / ₈	
zvi 58	1	7	12	1	8	16 ³ / ₄		1	10	0	
zvi	1	6	16	1	7	19 ⁷ / ₈		1	9	2 ¹ / ₈	
zv 58	1	5	20	1	6	23		1	8	4 ³ / ₈	
zv	1	5	0	1	6	2 ¹ / ₈		1	7	6 ⁷ / ₈	
zuiij 58	1	4	4	1	5	5 ¹ / ₄		1	6	8 ¹ / ₄	
zuiij	1	3	8	1	4	8 ³ / ₈		1	5	10 ¹ / ₈	
zuij 58	1	2	12	1	3	11 ¹ / ₂		1	4	13 ¹ / ₈	
zuij	1	1	16	1	2	14 ⁵ / ₈		1	3	15 ¹ / ₄	
zui 58	1	0	20	1	1	17 ³ / ₄		1	2	17 ¹ / ₂	
zui	1	0	0	1	0	20 ⁷ / ₈		1	1	19 ⁵ / ₈	
zi 58	0	19	4	1	0	0		1	0	21 ⁷ / ₈	
zi	0	18	8	0	19	3 ¹ / ₈		1	0	0	
z 58	0	17	12	0	18	6 ¹ / ₄		0	19	2 ¹ / ₈	
z	0	16	16	0	17	9 ³ / ₈		0	18	4 ³ / ₈	
iz 58	0	15	20	0	16	12 ¹ / ₂		0	17	6 ⁷ / ₈	
iz	0	15	0	0	15	15 ⁵ / ₈		0	16	8 ¹ / ₂	
viiij 58	0	14	4	0	14	18 ³ / ₄		0	15	10 ⁷ / ₈	
viiij	0	13	8	0	13	21 ⁷ / ₈		0	14	13 ¹ / ₈	
vij 58	0	12	12	0	13	1		0	13	15 ¹ / ₄	
vij	0	11	16	0	12	4 ¹ / ₈		0	12	17 ¹ / ₂	
vi 58	0	10	20	0	11	7 ¹ / ₄		0	11	19 ⁵ / ₈	
vi	0	10	0	0	10	10 ³ / ₈		0	10	21 ⁷ / ₈	
v 58	0	9	4	0	9	13 ⁵ / ₈		0	10	0	
v	0	8	8	0	8	16 ³ / ₄		0	9	2 ¹ / ₈	
iiii 58	0	7	12	0	7	19 ⁷ / ₈		0	8	4 ³ / ₈	
iiii	0	6	16	0	6	23		0	7	6 ⁷ / ₈	
iii 58	0	5	20	0	6	2 ¹ / ₈		0	6	8 ¹ / ₂	
iii	0	5	0	0	5	5 ¹ / ₄		0	5	10 ⁷ / ₈	
ii 58	0	4	4	0	4	8 ³ / ₈		0	4	13 ¹ / ₈	
ii	0	3	8	0	3	11 ¹ / ₂		0	3	15 ¹ / ₄	
i 58	0	2	12	0	2	14 ⁵ / ₈		0	2	17 ¹ / ₂	
i	0	1	16	0	1	17 ³ / ₄		0	1	19 ⁵ / ₈	
58	0	0	20	0	0	20 ⁷ / ₈		0	0	21 ⁷ / ₈	

C d m b				C d m b				C d m b			
Wo.	oz	dt.	gr.	oz	dt.	gr.		oz	dt.	gr.	
i oz.	1	18	$2\frac{1}{8}$	2	0	0		2	2	$2\frac{1}{4}$	
xi c b	1	17	$3\frac{3}{8}$	1	19	0		2	1	$1\frac{1}{4}$	
xix c	1	16	$6\frac{5}{8}$	1	18	0		2	0	0	
xviii b	1	15	$5\frac{3}{4}$	1	17	0		1	18	$22\frac{3}{4}$	
xvii	1	14	$6\frac{7}{8}$	1	16	0		1	17	$21\frac{1}{2}$	
xvi b	1	13	8	1	15	0		1	16	$20\frac{3}{4}$	
xv	1	12	$9\frac{1}{8}$	1	14	0		1	15	19	
xiv b	1	11	$10\frac{1}{4}$	1	13	0		1	14	$17\frac{5}{8}$	
xiii	1	10	$11\frac{3}{4}$	1	12	0		1	13	$16\frac{3}{8}$	
xii b	1	9	$12\frac{5}{8}$	1	11	0		1	12	$15\frac{1}{8}$	
xi	1	8	$13\frac{3}{4}$	1	10	0		1	11	$13\frac{7}{8}$	
x b	1	7	$14\frac{7}{8}$	1	9	0		1	10	$12\frac{5}{8}$	
ix b	1	6	16	1	8	0		1	9	$11\frac{3}{8}$	
viii b	1	5	$17\frac{1}{8}$	1	7	0		1	8	$10\frac{1}{8}$	
vii	1	4	$18\frac{1}{4}$	1	6	0		1	7	$8\frac{7}{8}$	
vi b	1	3	$19\frac{3}{8}$	1	5	0		1	6	$7\frac{5}{8}$	
v	1	2	$20\frac{5}{8}$	1	4	0		1	5	$6\frac{3}{8}$	
iv b	1	1	$21\frac{3}{4}$	1	3	0		1	4	5	
iii	1	0	$22\frac{7}{8}$	1	2	0		1	3	$3\frac{1}{4}$	
ii b	1	0	0	1	1	0		1	2	$2\frac{1}{2}$	
i	0	19	$1\frac{1}{8}$	1	0	0		1	1	$1\frac{1}{4}$	
ix b	0	18	$2\frac{1}{4}$	0	19	0		1	0	0	
ix	0	17	$3\frac{3}{8}$	0	18	0		0	18	$22\frac{3}{4}$	
viii b	0	16	$6\frac{5}{8}$	0	17	0		0	17	$21\frac{1}{2}$	
viii	0	15	$5\frac{3}{4}$	0	16	0		0	16	$20\frac{1}{4}$	
vii b	0	14	$6\frac{7}{8}$	0	15	0		0	15	19	
vii	0	13	8	0	14	0		0	14	$17\frac{5}{8}$	
vi b	0	12	$9\frac{1}{8}$	0	13	0		0	13	$16\frac{3}{8}$	
vi	0	11	$10\frac{1}{4}$	0	12	0		0	12	$15\frac{1}{8}$	
v b	0	10	$11\frac{3}{8}$	0	11	0		0	11	$13\frac{7}{8}$	
v	0	9	$12\frac{5}{8}$	0	10	0		0	10	$12\frac{5}{8}$	
iiii b	0	8	$13\frac{3}{4}$	0	9	0		0	9	$11\frac{3}{8}$	
iiii	0	7	$14\frac{7}{8}$	0	8	0		0	8	$10\frac{1}{8}$	
iii b	0	6	16	0	7	0		0	7	$8\frac{7}{8}$	
iii	0	5	$17\frac{1}{8}$	0	6	0		0	6	$7\frac{5}{8}$	
ii b	0	4	$18\frac{1}{2}$	0	5	0		0	5	$6\frac{3}{8}$	
ii	0	3	$19\frac{3}{8}$	0	4	0		0	4	5	
i b	0	2	$20\frac{5}{8}$	0	3	0		0	3	$3\frac{1}{4}$	
i	0	1	$21\frac{3}{4}$	0	2	0		0	2	$2\frac{1}{2}$	
b	0	0	$22\frac{7}{8}$	0	1	0		0	1	$1\frac{1}{4}$	

ix dmo				viii dmo ob				vii dmo			
Wo.	oz.	dt.	gr.	oz.	dt.	gr.		oz.	dt.	gr.	
i oz.	2	4	10 ⁵ / ₈	2	7	1 ³ / ₄		2	10	0	
ix ob	2	3	8	2	5	21 ¹ / ₈		2	8	18	
ix	2	2	5 ³ / ₈	2	4	17		2	7	12	
ix ob	2	1	2 ⁵ / ₈	2	2	8 ³ / ₄		2	6	6	
ix	2	0	0	2	3	12 ¹ / ₂		2	5	0	
ix ob	1	18	21 ³ / ₈	2	1	4 ¹ / ₄		2	3	18	
ix	1	17	18 ⁵ / ₈	2	0	0		2	2	12	
ix ob	1	16	16	1	18	19 ³ / ₄		2	1	6	
ix	1	15	13 ³ / ₈	1	17	15 ¹ / ₂		2	0	0	
ix ob	1	14	10 ⁵ / ₈	1	16	11 ³ / ₈		1	18	18	
ix	1	13	8	1	15	7 ¹ / ₂		1	17	12	
ix ob	1	12	5 ³ / ₈	1	14	2 ⁷ / ₈		1	16	6	
ix	1	11	2 ⁵ / ₈	1	12	22 ⁵ / ₈		1	15	0	
ix ob	1	10	0	1	11	18 ³ / ₈		1	13	18	
ix	1	8	21 ¹ / ₈	1	10	14 ¹ / ₂		1	12	12	
ix ob	1	7	18 ⁵ / ₈	1	9	9 ⁷ / ₈		1	11	6	
ix	1	6	16	1	8	5 ⁵ / ₈		1	10	0	
ix ob	1	5	13 ³ / ₈	1	7	1 ³ / ₈		1	8	18	
ix	1	4	10 ⁵ / ₈	1	5	21 ¹ / ₆		1	7	12	
ix ob	1	3	8	1	4	17		1	6	6	
ix	1	2	5 ³ / ₈	1	3	12 ³ / ₄		1	5	0	
ix ob	1	1	2 ⁵ / ₈	1	2	8 ¹ / ₂		1	3	18	
ix	0	0	0	1	1	4 ¹ / ₄		1	2	12	
ix ob	0	8	21 ³ / ₈	1	0	0		1	1	6	
ix	0	17	18 ⁵ / ₈	0	18	19 ³ / ₄		1	0	0	
ix ob	0	16	16	0	17	15 ¹ / ₂		0	18	8	
ix	0	15	13 ³ / ₈	0	16	11 ³ / ₈		0	17	12	
ix ob	0	14	10 ⁵ / ₈	0	15	7 ¹ / ₂		0	16	6	
ix	0	13	8	0	14	2 ⁷ / ₈		0	15	0	
ix ob	0	12	5 ³ / ₈	0	12	22 ⁵ / ₈		0	13	18	
ix	0	11	2 ⁵ / ₈	0	11	18 ³ / ₈		0	12	12	
ix ob	0	10	0	0	10	14 ¹ / ₂		0	11	6	
ix	0	8	21 ¹ / ₈	0	9	9 ⁷ / ₈		0	10	0	
ix ob	0	7	18 ⁵ / ₈	0	8	5 ⁵ / ₈		0	8	18	
ix	0	6	16	0	7	1 ³ / ₈		0	7	12	
ix ob	0	5	13 ³ / ₈	0	5	21 ¹ / ₆		0	6	6	
ix	0	4	10 ⁵ / ₈	0	4	17		0	5	0	
ix ob	0	3	8	0	3	12 ³ / ₄		0	3	18	
ix	0	2	5 ³ / ₈	0	2	8 ¹ / ₂		0	2	12	
ix ob	0	1	2 ⁵ / ₈	0	1	4 ¹ / ₄		0	1	6	

vij 8 ^{mo} 8 th				vij 8 ^{mo}				vij 8 ^{mo} 8 th			
Wo.	oz	dt.	gr.	oz	dt.	gr.		oz	dt.	gr.	
i 03.	2	13	8	2	17	3 ³ ₄		3	1	12 ⁷ ₈	
ii 03.	2	12	0	2	15	17 ¹ ₂		3	0	0	
iii 03.	2	10	16	2	14	6 ² ₈		2	18	11 ¹ ₈	
iiii 03.	2	9	8	2	12	20 ⁵ ₈		2	16	22 ¹ ₈	
v 03.	2	8	0	2	11	10 ¹ ₄		2	15	9 ¹ ₄	
vi 03.	2	6	16	2	10	0		2	13	20 ¹ ₄	
vii 03.	2	5	8	2	8	13 ³ ₈		2	12	7 ³ ₄	
viii 03.	2	4	0	2	7	3 ¹ ₈		2	10	18 ¹ ₂	
ix 03.	2	2	16	2	5	17 ¹ ₂		2	9	5 ¹ ₂	
x 03.	2	1	8	2	4	6 ¹ ₈		2	7	16 ⁵ ₈	
xi 03.	2	0	0	2	2	20 ⁵ ₈		2	6	3 ³ ₄	
xii 03.	1	18	16	2	1	10 ¹ ₄		2	4	14 ³ ₄	
xiii 03.	1	17	8	2	0	0		2	3	1 ⁷ ₈	
xiv 03.	1	16	0	1	18	13 ³ ₄		2	1	12 ⁷ ₈	
xv 03.	1	14	16	1	17	3 ³ ₈		2	0	0	
xvi 03.	1	13	8	1	15	17 ¹ ₂		1	18	11 ¹ ₈	
xvii 03.	1	12	0	1	14	6 ⁷ ₈		1	16	22 ¹ ₈	
xviii 03.	1	10	16	1	12	20 ⁵ ₈		1	15	9 ¹ ₄	
xix 03.	1	9	8	1	11	10 ¹ ₄		1	13	20 ¹ ₄	
xx 03.	1	8	0	1	10	0		1	12	7 ³ ₄	
xxi 03.	1	6	16	1	8	13 ³ ₈		1	10	18 ¹ ₂	
xxii 03.	1	5	8	1	7	3 ³ ₈		1	9	5 ¹ ₂	
xxiii 03.	1	4	0	1	5	17 ¹ ₂		1	7	16 ⁵ ₈	
xxiv 03.	1	2	16	1	4	6 ⁵ ₈		1	6	3 ³ ₄	
xxv 03.	1	1	8	1	2	20 ⁵ ₈		1	4	14 ³ ₄	
xxvi 03.	1	0	0	1	1	10 ¹ ₄		1	3	1 ⁷ ₈	
xxvii 03.	0	18	10	1	0	0		1	1	12 ⁷ ₈	
xxviii 03.	0	17	8	0	18	13 ³ ₄		1	0	0	
xxix 03.	0	16	0	0	17	3 ³ ₈		0	18	11 ¹ ₈	
xxx 03.	0	14	16	0	15	17 ¹ ₂		0	16	22 ¹ ₈	
xxxi 03.	0	13	8	0	14	6 ⁵ ₈		0	15	9 ¹ ₄	
xxxii 03.	0	12	0	0	12	20 ⁵ ₈		0	13	20 ¹ ₄	
xxxiii 03.	0	10	16	0	11	10 ¹ ₄		0	12	7 ³ ₄	
xxxiv 03.	0	9	8	0	10	0		0	10	18 ¹ ₂	
xxxv 03.	0	8	0	0	8	13 ³ ₄		0	9	5 ¹ ₂	
xxxvi 03.	0	6	16	0	7	3 ³ ₈		0	7	16 ⁵ ₈	
xxxvii 03.	0	5	8	0	5	17 ¹ ₂		0	6	3 ³ ₄	
xxxviii 03.	0	4	0	0	4	6 ⁵ ₈		0	4	14 ³ ₄	
xxxix 03.	0	2	16	0	2	20 ⁵ ₈		0	3	1 ⁷ ₈	
xl 03.	0	1	8	0	1	10 ¹ ₄		0	1	12 ⁷ ₈	

b. ၁၀၀				b. ၁၀၀				b. ၁၀၀			
v. o.	oz	dt.	gr.	oz	dt.	gr.		oz	dt.	gr.	
i oz.	3	6	16	3	12	17 $\frac{1}{2}$		4	0	0	
၁၀၀	3	5	0	3	10	21 $\frac{7}{8}$		3	18	0	
၁၀၀	3	3	8	3	9	2 $\frac{1}{4}$		3	16	0	
၁၀၀	3	1	16	3	7	6 $\frac{1}{2}$		3	14	0	
၁၀၀	3	0	0	3	5	10 $\frac{7}{8}$		3	12	0	
၁၀၀	2	18	8	3	3	15 $\frac{1}{4}$		3	10	0	
၁၀၀	2	16	16	3	1	19 $\frac{5}{8}$		3	8	0	
၁၀၀	2	15	0	3	0	0		3	6	0	
၁၀၀	2	13	8	2	18	4 $\frac{3}{8}$		3	4	0	
၁၀၀	2	11	16	2	16	8 $\frac{3}{4}$		3	2	0	
၁၀၀	2	10	0	2	14	13 $\frac{1}{8}$		3	0	0	
၁၀၀	2	8	8	2	12	17 $\frac{1}{2}$		2	18	0	
၁၀၀	2	6	16	2	10	21 $\frac{7}{8}$		2	16	0	
၁၀၀	2	5	0	2	9	2 $\frac{1}{4}$		2	14	0	
၁၀၀	2	3	8	2	7	6 $\frac{1}{2}$		2	12	0	
၁၀၀	2	1	16	2	5	10 $\frac{7}{8}$		2	10	0	
၁၀၀	2	0	0	2	3	15 $\frac{1}{4}$		2	8	0	
၁၀၀	1	18	8	2	1	19 $\frac{5}{8}$		2	6	0	
၁၀၀	1	16	16	2	0	0		2	4	0	
၁၀၀	1	15	0	1	18	4 $\frac{3}{8}$		2	2	0	
၁၀၀	1	13	8	1	16	8 $\frac{3}{4}$		2	0	0	
၁၀၀	1	11	16	1	14	13 $\frac{1}{8}$		1	18	0	
၁၀၀	1	10	0	1	12	17 $\frac{1}{2}$		1	16	0	
၁၀၀	1	8	8	1	10	21 $\frac{7}{8}$		1	14	0	
၁၀၀	1	6	16	1	9	2 $\frac{1}{4}$		1	12	0	
၁၀၀	1	5	0	1	7	6 $\frac{1}{2}$		1	10	0	
၁၀၀	1	3	8	1	5	10 $\frac{7}{8}$		1	8	0	
၁၀၀	1	1	16	1	3	15 $\frac{1}{4}$		1	6	0	
၁၀၀	1	0	0	1	1	19 $\frac{5}{8}$		1	4	0	
၁၀၀	0	18	8	1	0	0		1	2	0	
၁၀၀	0	16	16	0	18	4 $\frac{3}{8}$		1	0	0	
၁၀၀	0	15	0	0	16	8 $\frac{3}{4}$		0	18	0	
၁၀၀	0	13	8	0	14	13 $\frac{1}{8}$		0	16	0	
၁၀၀	0	11	16	0	12	17 $\frac{1}{2}$		0	14	0	
၁၀၀	0	10	0	0	10	21 $\frac{7}{8}$		0	12	0	
၁၀၀	0	8	8	0	9	2 $\frac{1}{4}$		0	10	0	
၁၀၀	0	6	16	0	7	6 $\frac{1}{2}$		0	8	0	
၁၀၀	0	5	0	0	5	10 $\frac{7}{8}$		0	6	0	
၁၀၀	0	3	8	0	3	15 $\frac{1}{4}$		0	4	0	
၁၀၀	0	1	16	0	1	19 $\frac{5}{8}$		0	2	0	

	iiij ስ/ሞጽ				iiij ስ/ሞ				iiij ስ/ሞጽ		
Wo.	oz	dt.	gr.		oz	dt	gr.		oz	dt	gr.
ገ 03	4	8	21 $\frac{3}{8}$		5	0	0		5	14	6 $\frac{7}{8}$
ገ 0ጽ	4	6	16		4	17	12		5	11	10 $\frac{1}{4}$
ገ 0ጽ	4	4	10 $\frac{5}{8}$		4	15	0		5	8	13 $\frac{3}{4}$
ገ viij ጽ	4	2	5 $\frac{3}{8}$		4	12	12		5	5	17 $\frac{5}{8}$
ገ viij	4	0	0		4	10	0		5	2	20 $\frac{5}{8}$
ገ vij ጽ	3	17	18 $\frac{5}{8}$		4	7	12		5	0	0
ገ vij	3	15	13 $\frac{3}{8}$		4	5	0		4	17	3 $\frac{3}{8}$
ገ vi ጽ	3	13	8		4	2	12		4	14	6 $\frac{7}{8}$
ገ vi	3	11	2 $\frac{5}{8}$		4	0	0		4	11	10 $\frac{1}{4}$
ገ v ጽ	3	8	21 $\frac{1}{8}$		3	17	12		4	8	13 $\frac{3}{4}$
ገ v	3	6	16		3	15	0		4	5	17 $\frac{1}{8}$
ገ viij ጽ	3	4	10 $\frac{5}{8}$		3	12	12		4	2	20 $\frac{5}{8}$
ገ viij	3	2	5 $\frac{3}{8}$		3	10	0		4	0	0
ገ vij ጽ	3	0	0		3	7	12		3	17	3 $\frac{3}{8}$
ገ vij	2	17	18 $\frac{5}{8}$		3	5	0		3	14	6 $\frac{7}{8}$
ገ vi ጽ	2	15	13 $\frac{3}{8}$		3	2	12		3	11	10 $\frac{1}{4}$
ገ vi	2	13	8		3	0	0		3	8	13 $\frac{3}{4}$
ገ v ጽ	2	11	2 $\frac{5}{8}$		2	17	12		3	5	17 $\frac{1}{8}$
ገ v	2	8	21 $\frac{3}{8}$		2	15	0		3	2	20 $\frac{5}{8}$
ገ 0ጽ	2	6	16		2	12	12		3	0	0
ገ 0	2	4	10 $\frac{5}{8}$		2	10	0		2	17	3 $\frac{3}{8}$
ገ 0ጽ	2	2	5 $\frac{3}{8}$		2	7	12		2	14	6 $\frac{7}{8}$
ገ 0	2	0	0		2	5	0		2	11	10 $\frac{1}{4}$
ገ viij ጽ	1	17	18 $\frac{5}{8}$		2	2	12		2	8	13 $\frac{3}{4}$
ገ viij	1	15	13 $\frac{3}{8}$		2	0	0		2	5	17 $\frac{5}{8}$
ገ vij ጽ	1	13	8		1	17	12		2	2	20 $\frac{5}{8}$
ገ vij	1	11	2 $\frac{5}{8}$		1	15	0		2	0	0
ገ vi ጽ	1	8	21 $\frac{3}{8}$		1	12	12		1	17	3 $\frac{3}{8}$
ገ vi	1	6	16		1	10	0		1	14	6 $\frac{7}{8}$
ገ v ጽ	1	4	10 $\frac{5}{8}$		1	7	12		1	11	10 $\frac{1}{4}$
ገ v	1	2	5 $\frac{3}{8}$		1	5	0		1	8	13 $\frac{3}{4}$
ገ iiij ጽ	1	0	0		1	2	12		1	5	17 $\frac{5}{8}$
ገ iiij	0	17	18 $\frac{5}{8}$		1	0	0		1	2	20 $\frac{5}{8}$
ገ ii ጽ	0	15	13 $\frac{3}{8}$		0	17	12		1	0	0
ገ ii	0	13	8		0	15	0		0	17	3 $\frac{3}{8}$
ገ i ጽ	0	11	2 $\frac{5}{8}$		0	12	12		0	14	6 $\frac{7}{8}$
ገ i	0	8	21 $\frac{3}{8}$		0	10	0		0	11	10 $\frac{1}{4}$
ገ 0ጽ	0	6	16		0	7	12		0	8	13 $\frac{3}{4}$
ገ 0	0	4	10 $\frac{5}{8}$		0	5	0		0	5	17 $\frac{1}{8}$
ገ 0ጽ	0	2	5 $\frac{3}{8}$		0	2	12		0	2	20 $\frac{5}{8}$

	iiij ʒ/℥				ij ʒ/℥				ij ʒ/℥		
Wo.	oz	dt.	gr.		oz	dt.	gr.		oz	dt.	gr.
i ʒ.	6	13	8		8	0	0		10	0	0
ʒi ʒ	6	10	0		7	16	0		9	15	0
ʒi ʒ	6	6	16		7	12	0		9	10	0
ʒviij ʒ	6	3	8		7	8	0		9	5	0
ʒviij	6	0	0		7	4	0		9	0	0
ʒviij ʒ	5	16	16		7	0	0		8	15	0
ʒviij	5	13	8		6	16	0		8	10	0
ʒviij ʒ	5	10	0		6	12	0		8	5	0
ʒviij	5	6	16		6	8	0		8	0	0
ʒv ʒ	5	3	8		6	4	0		7	15	0
ʒv	5	0	0		6	0	0		7	10	0
ʒviij ʒ	4	16	16		5	16	0		7	5	0
ʒviij	4	13	8		5	12	0		7	0	0
ʒviij ʒ	4	10	0		5	8	0		6	15	0
ʒviij	4	6	16		5	4	0		6	10	0
ʒviij ʒ	4	3	8		5	0	0		6	5	0
ʒviij	4	0	0		4	16	0		6	0	0
ʒi ʒ	3	16	16		4	12	0		5	15	0
ʒi ʒ	3	13	8		4	8	0		5	10	0
ʒ ʒ	3	10	0		4	4	0		5	5	0
ʒ	3	6	16		4	0	0		5	0	0
i ʒ ʒ	3	3	8		3	16	0		4	15	0
i ʒ	3	0	0		3	12	0		4	10	0
viij ʒ	2	16	16		3	8	0		4	5	0
viij	2	13	8		3	4	0		4	0	0
viij ʒ	2	10	0		3	0	0		3	15	0
viij	2	6	16		2	16	0		3	10	0
viij ʒ	2	3	8		2	12	0		3	5	0
viij	2	0	0		2	8	0		3	0	0
v ʒ	1	16	16		2	4	0		2	15	0
v	1	13	8		2	0	0		2	10	0
iiij ʒ	1	10	0		1	16	0		2	5	0
iiij	1	6	16		1	12	0		2	0	0
iiij ʒ	1	3	8		1	8	0		1	15	0
iiij	1	0	0		1	4	0		1	10	0
ij ʒ	0	16	16		1	0	0		1	5	0
ij	0	13	8		0	16	0		1	0	0
i ʒ	0	10	0		0	12	0		0	15	0
i ʒ	0	6	16		0	8	0		0	10	0
ʒ	0	3	8		0	4	0		0	5	0

i ၁၀၀ ဖ				i ၁၀၀				ဖ			
Wo.	oz.	dt.	gr.	oz.	dt.	gr.		oz.	dt.	gr.	
i ၀၃.	13	6	16	20	0	0		40	0	0	
၀၁၀ ဖ	13	0	0	19	10	0		39	0	0	
၀၁၀	12	13	8	19	0	0		38	0	0	
၀၁၁၁ ဖ	12	6	16	18	10	0		37	0	0	
၀၁၁၁	12	0	0	18	0	0		36	0	0	
၀၁၁၁ ဖ	11	13	8	17	10	0		35	0	0	
၀၁၁၁	11	6	16	17	0	0		34	0	0	
၀၁၁ ဖ	11	0	0	16	10	0		33	0	0	
၀၁၁	10	13	8	16	0	0		32	0	0	
၀၁ ဖ	10	6	16	15	10	0		31	0	0	
၀၁	10	0	0	15	0	0		30	0	0	
၀၁၁၁ ဖ	9	13	8	14	10	0		29	0	0	
၀၁၁၁	9	6	16	14	0	0		28	0	0	
၀၁၁၁ ဖ	9	0	0	13	10	0		27	0	0	
၀၁၁၁	8	13	8	13	0	0		26	0	0	
၀၁၁ ဖ	8	6	16	12	10	0		25	0	0	
၀၁၁	8	0	0	12	0	0		24	0	0	
၀၁ ဖ	7	13	8	11	10	0		23	0	0	
၀၁	7	6	16	11	0	0		22	0	0	
၀ ဖ	7	0	0	10	10	0		21	0	0	
၀	6	13	8	10	0	0		20	0	0	
၀၁၁ ဖ	6	6	16	9	10	0		19	0	0	
၀၁၁	6	0	0	9	0	0		18	0	0	
၀၁၁၁ ဖ	5	13	8	8	10	0		17	0	0	
၀၁၁၁	5	6	16	8	0	0		16	0	0	
၀၁၁၁ ဖ	5	0	0	7	10	0		15	0	0	
၀၁၁၁	4	13	8	7	0	0		14	0	0	
၀၁၁ ဖ	4	6	16	6	10	0		13	0	0	
၀၁၁	4	0	0	6	0	0		12	0	0	
၀၁ ဖ	3	13	8	5	10	0		11	0	0	
၀၁	3	6	16	5	0	0		10	0	0	
၀၁၁၁ ဖ	3	0	0	4	10	0		9	0	0	
၀၁၁၁	2	13	8	4	0	0		8	0	0	
၀၁၁၁ ဖ	2	6	16	3	10	0		7	0	0	
၀၁၁၁	2	0	0	3	0	0		6	0	0	
၀၁၁ ဖ	1	13	8	2	10	0		5	0	0	
၀၁၁	1	6	16	2	0	0		4	0	0	
၀၁ ဖ	1	0	0	1	10	0		3	0	0	
၀၁	0	13	8	1	0	0		2	0	0	
၀	0	6	16	0	10	0		1	0	0	

Use of the SILVER TABLES.

The reports of silver better than standard are at the top of the page, and those which are worse from 1 oz. to one $\frac{1}{2}$ dwt. on the side, and where they meet is found, how much of the better is to be added to one ounce of the worse to make it standard.

Thus if the silver you are to standard with is $\mathcal{L}vi$ dwt. Br. and that to be made standard is $\mathcal{L}i\text{ss}$ dwt. Wo. the table shews 14 dwt. 9 gr. will do it, if 1 oz. Wo. it will require 1 oz. 5 dwt. and if 1 oz. $\mathcal{L}i\text{ss}$ dwt. Wo. the above quantities of 14 dwt. 9 gr. added to 1 oz. 5 dwt. or 1 oz. 19 dwt. 9 gr. is what must be added of the better to 1 oz. of the worse to make it standard, and so of any other.

If there are three or more different ingots melted together, all of them worse, as suppose $\mathcal{L}viii$ dwt. $\mathcal{L}iiij$ dwt. and $v\text{ss}$ dwt. the table will shew what quantity of any assigned fineness which is better; as for instance $\mathcal{L}iiij\text{ss}$ dwt. Br. is to be added to one oz. of the melted mass to make it standard; thus $\mathcal{L}viii$ dwt. Wo. requires 1 oz. 16 dwt. 16 gr. the $\mathcal{L}iiij$ dwt. Wo. requires 19 dwt. $6\frac{1}{4}$ gr. the $v\text{ss}$ Wo. 8 dwt. $3\frac{1}{2}$ gr. and being added together it makes 3 oz. 4 dwt. $1\frac{3}{4}$ gr. must be added of $\mathcal{L}iiij$ Br. to make it standard.

If instead of adding silver better, in order to standard silver that is worse, if it be required what part of any ingot that is worse must be refined to any given fineness to make the remainder standard; a general rule by which it may be performed, is given at the end of the gold tables.

TABLES.

T A B L E S

OF THE

Q U A N T I T Y

OF

G O L D,

From two Carats to one Quarter of a Carat Grain better, to be added to one Ounce of Gold, from a Quarter of a Carat Grain, to two Carats two Grains worse, to make it Standard.

Wo.	ij tar			jcar iij ³ / ₄			j tar iij ¹ / ₂		
ca. gr.	oz	dt.	gr.	oz	dt.	gr.	oz	dt	gr.
ij	1	5	0	1	5	19 ³ / ₈	1	6	16
ij	1 ³ / ₄	4	9	1	5	3 ⁷ / ₈	1	6	0
ij	1 ¹ / ₂	3	18	1	4	12 ³ / ₈	1	5	8
ij	1 ¹ / ₄	3	3	1	3	20 ⁷ / ₈	1	4	16
ij	1	2	12	1	3	5 ³ / ₈	1	4	0
ij	3 ³ / ₄	1	21	1	2	13 ⁷ / ₈	1	3	8
ij	1 ¹ / ₂	1	6	1	1	22 ¹ / ₂	1	2	16
ij	1 ¹ / ₄	0	15	1	1	7	1	2	0
ij	1	0	0	1	0	15 ¹ / ₂	1	1	8
ij	3 ³ / ₄	0	19	1	0	0	1	0	16
ij	1 ¹ / ₂	0	18	0	19	8 ¹ / ₂	1	0	0
ij	1 ¹ / ₄	0	18	0	18	17	0	19	8
ij	1	0	17	0	18	1 ¹ / ₂	0	18	16
ij	3 ³ / ₄	0	16	0	17	10 ¹ / ₈	0	18	0
ij	1 ¹ / ₂	0	16	0	16	18 ⁵ / ₈	0	17	8
ij	1 ¹ / ₄	0	15	0	16	3 ¹ / ₈	0	16	16
ij	1	0	15	0	15	11 ⁵ / ₈	0	15	0
ij	3 ³ / ₄	0	14	0	14	20 ¹ / ₈	0	15	8
ij	1 ¹ / ₂	0	13	0	14	4 ⁵ / ₈	0	14	16
ij	1 ¹ / ₄	0	13	0	13	3 ¹ / ₈	0	14	0
ij	1	0	12	0	12	21 ⁵ / ₈	0	13	8
ij	3 ³ / ₄	0	11	0	12	6 ¹ / ₄	0	12	16
ij	1 ¹ / ₂	0	11	0	11	14 ³ / ₄	0	12	0
ij	1 ¹ / ₄	0	10	0	10	23 ¹ / ₄	0	11	8
ij	1	0	10	0	10	7 ³ / ₄	0	10	16
ij	3 ³ / ₄	0	9	0	9	16 ¹ / ₄	0	10	0
ij	1 ¹ / ₂	0	8	0	9	0 ³ / ₄	0	9	8
ij	1 ¹ / ₄	0	8	0	8	9 ¹ / ₄	0	8	16
ij	1	0	7	0	7	17 ⁷ / ₈	0	8	0
ij	3 ³ / ₄	0	6	0	7	2 ³ / ₈	0	7	8
ij	1 ¹ / ₂	0	6	0	6	10 ⁷ / ₈	0	6	16
ij	1 ¹ / ₄	0	5	0	5	19 ³ / ₈	0	6	0
ij	1	0	5	0	5	3 ⁷ / ₈	0	5	8
ij	3 ³ / ₄	0	4	0	4	12 ⁵ / ₈	0	4	16
ij	1 ¹ / ₂	0	3	0	3	20 ⁷ / ₈	0	4	0
ij	1 ¹ / ₄	0	3	0	3	5 ³ / ₈	0	3	8
ij	1	0	2	0	2	13 ⁷ / ₈	0	2	16
ij	3 ³ / ₄	0	1	0	1	22 ³ / ₈	0	2	0
ij	1 ¹ / ₂	0	1	0	1	7	0	1	8
ij	1 ¹ / ₄	0	0	0	0	15 ¹ / ₂	0	0	16

Wo.				i car iii $\frac{1}{4}$				i car iii gr				i car ii $\frac{3}{4}$			
ca.	gr.	oz.	dt.	gr.	oz.	dt.	gr.	oz.	dt.	gr.	oz.	dt.	gr.		
i	i	1	7	14 $\frac{1}{8}$	1	8	13 $\frac{3}{4}$	1	9	15 $\frac{1}{8}$					
i	i $\frac{3}{4}$	1	6	21 $\frac{1}{2}$	1	7	20 $\frac{1}{8}$	i	8	21 $\frac{3}{8}$					
i	i $\frac{1}{2}$	1	6	5 $\frac{5}{8}$	1	7	3 $\frac{3}{8}$	1	8	3 $\frac{1}{2}$					
i	i $\frac{1}{4}$	1	5	12 $\frac{3}{8}$	1	6	10 $\frac{1}{4}$	1	7	9 $\frac{3}{4}$					
i	i	1	4	19 $\frac{7}{8}$	1	5	17 $\frac{1}{8}$	1	6	16					
i	i $\frac{3}{4}$	1	4	3 $\frac{1}{4}$	1	5	0	1	5	22 $\frac{1}{2}$					
i	i $\frac{1}{2}$	1	3	10 $\frac{3}{4}$	1	4	6 $\frac{7}{8}$	1	5	4 $\frac{3}{8}$					
i	i $\frac{1}{4}$	1	2	18 $\frac{1}{4}$	1	3	13 $\frac{3}{4}$	1	4	10 $\frac{5}{8}$					
i	i	1	2	1 $\frac{5}{8}$	1	2	20 $\frac{5}{8}$	1	3	16 $\frac{7}{8}$					
i	i $\frac{3}{4}$	1	1	9 $\frac{1}{8}$	1	2	3 $\frac{3}{8}$	1	2	23 $\frac{1}{8}$					
i	i $\frac{1}{2}$	1	0	16 $\frac{1}{2}$	1	1	10 $\frac{1}{4}$	1	2	5 $\frac{1}{2}$					
i	i $\frac{1}{4}$	1	0	0	1	0	17 $\frac{1}{8}$	1	1	11 $\frac{1}{2}$					
i	i	0	19	7 $\frac{1}{2}$	1	0	0	1	0	17 $\frac{3}{4}$					
i	i $\frac{3}{4}$	0	18	14 $\frac{7}{8}$	0	19	6 $\frac{7}{8}$	1	0	0					
i	i $\frac{1}{2}$	0	17	22 $\frac{1}{4}$	0	18	13 $\frac{3}{4}$	0	19	6 $\frac{1}{4}$					
i	i $\frac{1}{4}$	0	17	5 $\frac{3}{4}$	0	17	20 $\frac{5}{8}$	0	18	21 $\frac{3}{8}$					
i	i	0	16	13 $\frac{1}{4}$	0	17	3 $\frac{3}{4}$	0	18	2 $\frac{3}{8}$					
i	i $\frac{3}{4}$	0	15	20 $\frac{5}{8}$	0	16	10 $\frac{1}{4}$	0	17	0 $\frac{7}{8}$					
i	i $\frac{1}{2}$	0	15	4 $\frac{1}{2}$	0	15	17 $\frac{1}{8}$	0	16	7 $\frac{1}{8}$					
i	i $\frac{1}{4}$	0	14	11 $\frac{1}{2}$	0	15	0	0	15	13 $\frac{1}{8}$					
i	i	0	13	19	0	14	6 $\frac{7}{8}$	0	14	19 $\frac{1}{2}$					
i	i $\frac{3}{4}$	0	13	2 $\frac{1}{2}$	0	13	13 $\frac{3}{4}$	0	14	1 $\frac{3}{4}$					
i	i $\frac{1}{2}$	0	12	9 $\frac{7}{8}$	0	12	20 $\frac{5}{8}$	0	13	8					
i	i $\frac{1}{4}$	0	11	17 $\frac{3}{8}$	0	12	3 $\frac{3}{8}$	0	12	14 $\frac{1}{4}$					
i	i	0	11	0 $\frac{3}{4}$	0	11	10 $\frac{1}{4}$	0	11	20 $\frac{3}{8}$					
i	i $\frac{3}{4}$	0	10	8 $\frac{1}{4}$	0	10	17 $\frac{1}{8}$	0	11	2 $\frac{3}{8}$					
i	i $\frac{1}{2}$	0	9	15 $\frac{3}{4}$	0	10	0	0	10	8 $\frac{1}{4}$					
i	i $\frac{1}{4}$	0	8	23 $\frac{1}{8}$	0	9	6 $\frac{7}{8}$	0	9	15 $\frac{1}{8}$					
i	i	0	8	6 $\frac{5}{8}$	0	8	13 $\frac{3}{4}$	0	8	21 $\frac{3}{8}$					
i	i $\frac{3}{4}$	0	7	14 $\frac{1}{8}$	0	7	20 $\frac{5}{8}$	0	8	3 $\frac{1}{2}$					
i	i $\frac{1}{2}$	0	6	21 $\frac{1}{2}$	0	7	3 $\frac{3}{8}$	0	7	9 $\frac{3}{4}$					
i	i $\frac{1}{4}$	0	6	5 $\frac{3}{8}$	0	6	10 $\frac{1}{4}$	0	6	16					
i	i	0	5	12 $\frac{3}{8}$	0	5	17 $\frac{1}{8}$	0	5	22 $\frac{1}{4}$					
i	i $\frac{3}{4}$	0	4	19 $\frac{7}{8}$	0	5	0	0	5	4 $\frac{3}{8}$					
i	i $\frac{1}{2}$	0	4	3 $\frac{3}{4}$	0	4	6 $\frac{7}{8}$	0	4	10 $\frac{5}{8}$					
i	i $\frac{1}{4}$	0	3	10 $\frac{3}{4}$	0	3	13 $\frac{3}{4}$	0	3	16 $\frac{7}{8}$					
i	i	0	2	18 $\frac{1}{4}$	0	2	20 $\frac{5}{8}$	0	2	23 $\frac{1}{8}$					
i	i $\frac{3}{4}$	0	2	1 $\frac{5}{8}$	0	2	3 $\frac{3}{8}$	0	2	5 $\frac{3}{8}$					
i	i $\frac{1}{2}$	0	1	9 $\frac{1}{8}$	0	1	10 $\frac{1}{4}$	0	1	11 $\frac{1}{2}$					
i	i $\frac{1}{4}$	0	0	16 $\frac{1}{2}$	0	0	17 $\frac{1}{8}$	0	0	17 $\frac{3}{4}$					

Wo.	i	tar ij ²	i	tar ij ²	i	tar ij
ca. gr (oz dt. gr.						
ij ij	I	10 18 ¹ / ₂	I	12 0	I	13 8
ij ij	I	10 0	I	11 4 ⁷ / ₈	I	12 12
ij ij	I	9 5 ¹ / ₂	I	10 9 ⁵ / ₈	I	11 16
ij ij	I	8 11 ¹ / ₈	I	9 14 ³ / ₈	I	10 20
ij ij	I	7 16 ⁵ / ₈	I	8 19 ¹ / ₄	I	10 0
ij ij	I	6 22 ¹ / ₈	I	8 0	I	9 4
ij ij	I	6 3 ³ / ₄	I	7 4 ⁷ / ₈	I	8 8
ij ij	I	5 9 ³ / ₄	I	6 9 ⁵ / ₈	I	7 12
ij ij	I	4 14 ³ / ₄	I	5 14 ² / ₈	I	6 16
ij ij	I	3 20 ¹ / ₄	I	4 19 ¹ / ₄	I	5 20
ij ij	I	3 1 ⁷ / ₈	I	4 0	I	5 0
ij ij	I	2 7 ³ / ₈	I	3 4 ⁷ / ₈	I	4 4
ij ij	I	1 12 ⁷ / ₈	I	2 9 ⁵ / ₈	I	3 8
ij ij	I	0 18 ¹ / ₂	I	1 14 ³ / ₈	I	2 12
ij ij	I	0 0	I	0 19 ¹ / ₄	I	1 16
ij ij	0	19 5 ¹ / ₂	I	0 0	I	0 20
ij ij	0	18 11 ¹ / ₈	0	19 4 ⁷ / ₈	I	0 0
ij ij	0	17 16 ⁵ / ₈	0	18 9 ⁵ / ₈	0	19 4
ij ij	0	16 22 ¹ / ₈	0	17 14 ³ / ₈	0	18 8
ij ij	0	16 3 ³ / ₄	0	16 19 ¹ / ₄	0	17 12
ij ij	0	15 9 ¹ / ₄	0	16 0	0	16 16
ij ij	0	14 14 ³ / ₄	0	15 4 ⁷ / ₈	0	15 20
ij ij	0	13 20 ¹ / ₄	0	14 9 ⁵ / ₈	0	15 0
ij ij	0	13 1 ⁷ / ₈	0	13 14 ³ / ₈	0	14 4
ij ij	0	12 7 ³ / ₈	0	12 19 ¹ / ₄	0	13 8
ij ij	0	11 12 ⁷ / ₈	0	12 0	0	12 12
ij ij	0	10 18 ¹ / ₂	0	11 4 ⁷ / ₈	0	11 16
ij ij	0	10 0	0	10 9 ⁵ / ₈	0	10 20
ij ij	0	9 5 ¹ / ₂	0	9 14 ³ / ₈	0	10 0
ij ij	0	8 11 ¹ / ₈	0	8 19 ¹ / ₄	0	9 4
ij ij	0	7 16 ⁵ / ₈	0	8 0	0	8 8
ij ij	0	6 22 ¹ / ₈	0	7 4 ⁷ / ₈	0	7 12
ij ij	0	6 3 ³ / ₄	0	6 9 ⁵ / ₈	0	6 16
ij ij	0	5 9 ¹ / ₄	0	5 14 ³ / ₈	0	5 20
ij ij	0	4 14 ³ / ₄	0	4 19 ¹ / ₄	0	5 0
ij ij	0	3 20 ¹ / ₄	0	4 0	0	4 4
ij ij	0	3 1 ⁷ / ₈	0	3 4 ⁷ / ₈	0	3 8
ij ij	0	2 7 ³ / ₈	0	2 9 ⁵ / ₈	0	2 12
ij ij	0	1 12 ⁷ / ₈	0	1 14 ³ / ₈	0	1 16
ij ij	0	0 18 ¹ / ₂	0	0 19 ¹ / ₄	0	0 20

Wo.			i car $\frac{3}{4}$			i car $\frac{1}{2}$			i car $\frac{1}{4}$		
ca.	gr.	oz.	dt.	gr.	oz.	dt.	gr.	oz.	dt.	gr.	
11	11	I	14	18 $\frac{3}{4}$	I	16	8 $\frac{1}{8}$	I	18	2 $\frac{1}{8}$	
11	11 $\frac{3}{4}$	I	13	21 $\frac{7}{8}$	I	15	10 $\frac{7}{8}$	I	17	3 $\frac{3}{8}$	
11	11 $\frac{1}{2}$	I	13	I	I	14	13 $\frac{1}{8}$	I	16	6 $\frac{3}{8}$	
11	11 $\frac{1}{4}$	I	12	4 $\frac{1}{8}$	I	13	15 $\frac{1}{4}$	I	15	5 $\frac{3}{4}$	
11	11	I	11	7 $\frac{1}{4}$	I	12	17 $\frac{1}{2}$	I	14	6 $\frac{7}{8}$	
11	11 $\frac{3}{4}$	I	10	10 $\frac{3}{8}$	I	11	19 $\frac{5}{8}$	I	13	8	
11	11 $\frac{1}{2}$	I	9	13 $\frac{5}{8}$	I	10	21 $\frac{7}{8}$	I	12	9 $\frac{1}{8}$	
11	11 $\frac{1}{4}$	I	8	16 $\frac{3}{4}$	I	10	0	I	11	10 $\frac{1}{4}$	
11	11	I	7	19 $\frac{7}{8}$	I	9	2 $\frac{1}{8}$	I	10	11 $\frac{3}{4}$	
11	11 $\frac{3}{4}$	I	6	23	I	8	4 $\frac{3}{8}$	I	9	12 $\frac{5}{8}$	
11	11 $\frac{1}{2}$	I	6	2 $\frac{1}{8}$	I	7	6 $\frac{7}{8}$	I	8	13 $\frac{3}{4}$	
11	11 $\frac{1}{4}$	I	5	5 $\frac{1}{4}$	I	6	8 $\frac{1}{2}$	I	7	14 $\frac{7}{8}$	
11	11	I	4	8 $\frac{3}{8}$	I	5	10 $\frac{7}{8}$	I	6	16	
11	11 $\frac{3}{4}$	I	3	11 $\frac{1}{2}$	I	4	13 $\frac{1}{8}$	I	5	17 $\frac{1}{8}$	
11	11 $\frac{1}{2}$	I	2	14 $\frac{5}{8}$	I	3	15 $\frac{1}{4}$	I	4	18 $\frac{1}{4}$	
11	11 $\frac{1}{4}$	I	1	17 $\frac{3}{4}$	I	2	17 $\frac{1}{2}$	I	3	19 $\frac{3}{8}$	
11	11	I	0	20 $\frac{7}{8}$	I	1	19 $\frac{5}{8}$	I	2	20 $\frac{5}{8}$	
11	11 $\frac{3}{4}$	I	0	0	I	0	21 $\frac{7}{8}$	I	1	21 $\frac{3}{4}$	
11	11 $\frac{1}{2}$	0	19	3 $\frac{1}{8}$	I	0	0	I	0	22 $\frac{7}{8}$	
11	11 $\frac{1}{4}$	0	18	6 $\frac{1}{4}$	0	19	2 $\frac{1}{8}$	I	0	0	
11	11	0	17	9 $\frac{3}{8}$	0	18	4 $\frac{3}{8}$	0	19	1 $\frac{1}{8}$	
11	11 $\frac{3}{4}$	0	16	12 $\frac{1}{2}$	0	17	6 $\frac{7}{8}$	0	18	2 $\frac{1}{4}$	
11	11 $\frac{1}{2}$	0	15	15 $\frac{5}{8}$	0	16	8 $\frac{1}{2}$	0	17	3 $\frac{3}{8}$	
11	11 $\frac{1}{4}$	0	14	18 $\frac{3}{4}$	0	15	10 $\frac{7}{8}$	0	16	6 $\frac{5}{8}$	
11	11	0	13	21 $\frac{7}{8}$	0	14	13 $\frac{1}{8}$	0	15	5 $\frac{3}{4}$	
11	11 $\frac{3}{4}$	0	13	I	0	13	15 $\frac{1}{4}$	0	14	6 $\frac{7}{8}$	
11	11 $\frac{1}{2}$	0	12	4 $\frac{1}{8}$	0	12	17 $\frac{1}{2}$	0	13	8	
11	11 $\frac{1}{4}$	0	11	7 $\frac{1}{4}$	0	11	19 $\frac{5}{8}$	0	12	9 $\frac{1}{8}$	
11	11	0	10	10 $\frac{3}{8}$	0	10	21 $\frac{7}{8}$	0	11	10 $\frac{1}{4}$	
11	11 $\frac{3}{4}$	0	9	13 $\frac{5}{8}$	0	10	0	0	10	11 $\frac{3}{8}$	
11	11 $\frac{1}{2}$	0	8	16 $\frac{3}{4}$	0	9	2 $\frac{1}{8}$	0	9	12 $\frac{5}{8}$	
11	11 $\frac{1}{4}$	0	7	19 $\frac{7}{8}$	0	8	4 $\frac{3}{8}$	0	8	13 $\frac{3}{4}$	
11	11	0	6	23	0	7	6 $\frac{7}{8}$	0	7	14 $\frac{7}{8}$	
11	11 $\frac{3}{4}$	0	6	2 $\frac{1}{8}$	0	6	8 $\frac{1}{2}$	0	6	16	
11	11 $\frac{1}{2}$	0	5	5 $\frac{1}{4}$	0	5	10 $\frac{7}{8}$	0	5	17 $\frac{1}{8}$	
11	11 $\frac{1}{4}$	0	4	8 $\frac{3}{8}$	0	4	13 $\frac{1}{8}$	0	4	18 $\frac{1}{4}$	
11	11	0	3	11 $\frac{1}{2}$	0	3	15 $\frac{1}{4}$	0	3	19 $\frac{3}{8}$	
11	11 $\frac{3}{4}$	0	2	14 $\frac{5}{8}$	0	2	17 $\frac{1}{2}$	0	2	20 $\frac{5}{8}$	
11	11 $\frac{1}{2}$	0	1	17 $\frac{3}{4}$	0	1	19 $\frac{5}{8}$	0	1	21 $\frac{3}{4}$	
11	11 $\frac{1}{4}$	0	0	20 $\frac{7}{8}$	0	0	21 $\frac{7}{8}$	0	0	22 $\frac{7}{8}$	

Wo. 1 car 1 gr				1 car 0 $\frac{3}{4}$				1 car 0 $\frac{1}{2}$			
ta. gr.	oz	dt.	gr.	oz	dt.	gr.		oz	dt.	gr.	
11	2	0	0	2	2	2 $\frac{1}{2}$		2	4	10 $\frac{5}{8}$	
11	1 $\frac{3}{4}$	19	0	2	1	1 $\frac{1}{4}$		2	3	8	
11	1 $\frac{1}{2}$	18	0	2	0	0		2	2	5 $\frac{3}{8}$	
11	1 $\frac{1}{4}$	17	0	1	18	22 $\frac{3}{4}$		2	1	2 $\frac{1}{8}$	
11	1	16	0	1	17	21 $\frac{1}{2}$		2	0	0	
11	3 $\frac{3}{4}$	15	0	1	16	20 $\frac{1}{4}$		1	18	21 $\frac{3}{8}$	
11	1 $\frac{1}{2}$	14	0	1	15	19		1	17	18 $\frac{5}{8}$	
11	1 $\frac{1}{4}$	13	0	1	14	17 $\frac{5}{8}$		1	16	16	
11	1	12	0	1	13	16 $\frac{3}{8}$		1	15	13 $\frac{3}{8}$	
11	3 $\frac{3}{4}$	11	0	1	12	15 $\frac{1}{8}$		1	14	10 $\frac{5}{8}$	
11	1 $\frac{1}{2}$	10	0	1	11	12 $\frac{7}{8}$		1	13	8	
11	1 $\frac{1}{4}$	9	0	1	10	12 $\frac{5}{8}$		1	12	5 $\frac{3}{8}$	
11	1	8	0	1	9	11 $\frac{3}{8}$		1	11	2 $\frac{5}{8}$	
11	3 $\frac{3}{4}$	7	0	1	8	10 $\frac{1}{8}$		1	10	0	
11	1 $\frac{1}{2}$	6	0	1	7	8 $\frac{7}{8}$		1	8	21 $\frac{3}{8}$	
11	1 $\frac{1}{4}$	5	0	1	6	7 $\frac{5}{8}$		1	7	18 $\frac{5}{8}$	
11	1	4	0	1	5	6 $\frac{3}{8}$		1	6	16	
11	3 $\frac{3}{4}$	3	0	1	4	5		1	5	13 $\frac{3}{8}$	
11	1 $\frac{1}{2}$	2	0	1	3	3 $\frac{3}{4}$		1	4	10 $\frac{5}{8}$	
11	1 $\frac{1}{4}$	1	0	1	2	2 $\frac{1}{2}$		1	3	8	
11	1	0	0	1	1	1 $\frac{1}{4}$		1	2	5 $\frac{3}{8}$	
11	3 $\frac{3}{4}$	0	19	1	0	0		1	1	2 $\frac{5}{8}$	
11	1 $\frac{1}{2}$	0	18	0	18	22 $\frac{3}{4}$		1	0	0	
11	1 $\frac{1}{4}$	0	17	0	17	21 $\frac{1}{2}$		0	18	21 $\frac{3}{8}$	
11	1	0	16	0	16	20 $\frac{1}{4}$		0	17	18 $\frac{5}{8}$	
11	3 $\frac{3}{4}$	0	15	0	15	19		0	16	16	
11	1 $\frac{1}{2}$	0	14	0	14	17 $\frac{5}{8}$		0	15	13 $\frac{3}{8}$	
11	1 $\frac{1}{4}$	0	13	0	13	16 $\frac{3}{8}$		0	14	10 $\frac{5}{8}$	
11	1	0	12	0	12	15 $\frac{1}{8}$		0	13	8	
11	3 $\frac{3}{4}$	0	11	0	11	13 $\frac{7}{8}$		0	12	5 $\frac{3}{8}$	
11	1 $\frac{1}{2}$	0	10	0	10	12 $\frac{5}{8}$		0	11	2 $\frac{5}{8}$	
11	1 $\frac{1}{4}$	0	9	0	9	11 $\frac{3}{8}$		0	10	0	
11	1	0	8	0	8	10 $\frac{1}{8}$		0	8	21 $\frac{3}{8}$	
11	3 $\frac{3}{4}$	0	7	0	7	8 $\frac{7}{8}$		0	7	18 $\frac{5}{8}$	
11	1 $\frac{1}{2}$	0	6	0	6	7 $\frac{5}{8}$		0	6	16	
11	1 $\frac{1}{4}$	0	5	0	5	6 $\frac{3}{8}$		0	5	13 $\frac{3}{8}$	
11	1	0	4	0	4	5		0	4	10 $\frac{5}{8}$	
11	3 $\frac{3}{4}$	0	3	0	3	3 $\frac{3}{4}$		0	3	8	
11	1 $\frac{1}{2}$	0	2	0	2	2 $\frac{1}{2}$		0	2	5 $\frac{3}{8}$	
11	1 $\frac{1}{4}$	0	1	0	1	1 $\frac{1}{4}$		0	1	2 $\frac{5}{8}$	

Wo. i tar $0\frac{1}{4}$				i tar				ii $\frac{3}{4}$ gr			
ca. gr.	oz	dt.	gr.	oz	dt.	gr.		oz	dt.	gr.	
i	2	7	$1\frac{3}{4}$	2	10	0		2	13	8	
i	2	5	$21\frac{1}{4}$	2	8	18		2	12	0	
i	2	4	17	2	7	12		2	10	16	
i	2	3	$12\frac{3}{4}$	2	6	6		2	9	8	
i	2	2	$8\frac{1}{2}$	2	5	0		2	8	0	
i	2	1	$4\frac{1}{4}$	2	3	18		2	6	16	
i	2	0	0	2	2	12		2	5	8	
i	1	18	$19\frac{3}{4}$	2	1	6		2	4	0	
i	1	17	$15\frac{1}{2}$	2	0	0		2	2	16	
ii	1	16	$11\frac{3}{8}$	i	18	18		2	1	8	
ii	1	15	$7\frac{1}{2}$	i	17	12		2	0	0	
ii	1	14	$2\frac{7}{8}$	i	16	6		i	18	16	
ii	1	12	$22\frac{5}{8}$	i	15	0		i	17	8	
ii	1	11	$18\frac{3}{8}$	i	13	18		i	16	0	
ii	1	10	$14\frac{1}{8}$	i	12	12		i	14	16	
ii	1	9	$9\frac{7}{8}$	i	11	6		i	13	8	
ii	1	8	$5\frac{5}{8}$	i	10	0		i	12	0	
ii	1	7	$1\frac{3}{8}$	i	8	18		i	10	16	
ii	1	5	$21\frac{1}{8}$	i	7	12		i	9	8	
ii	1	4	17	i	6	6		i	8	0	
ii	1	3	$12\frac{3}{4}$	i	5	0		i	6	16	
ii	1	2	$8\frac{1}{2}$	i	3	18		i	5	8	
ii	1	1	$4\frac{1}{4}$	i	2	12		i	4	0	
ii	1	0	0	i	1	6		i	2	16	
ii	0	18	$19\frac{3}{4}$	i	0	0		i	1	8	
ii	0	17	$15\frac{1}{2}$	0	18	18		i	0	0	
ii	0	16	$11\frac{3}{8}$	0	17	12		0	18	16	
ii	0	15	$7\frac{1}{2}$	0	10	6		0	17	8	
ii	0	14	$2\frac{7}{8}$	0	15	0		0	16	0	
ii	0	12	$22\frac{5}{8}$	0	13	18		0	14	16	
ii	0	11	$18\frac{3}{8}$	0	12	12		0	13	8	
ii	0	10	$14\frac{1}{8}$	0	11	6		0	12	0	
ii	0	9	$9\frac{7}{8}$	0	10	0		0	10	16	
ii	0	8	$5\frac{5}{8}$	0	8	18		0	9	8	
ii	0	7	$1\frac{3}{8}$	0	7	12		0	8	0	
ii	0	5	$21\frac{1}{8}$	0	6	6		0	6	16	
ii	0	4	17	0	5	0		0	5	8	
ii	0	3	$12\frac{3}{4}$	0	3	18		0	4	0	
ii	0	2	$8\frac{1}{2}$	0	2	12		0	2	16	
ii	0	1	$4\frac{1}{4}$	0	1	6		0	1	8	

Wo. $ij \frac{1}{2} gr$ $ij \frac{1}{4} gr$ $ij gr$													
ca.	gr.	oz	dt.	gr.	oz	dt.	gr.	oz	dt.	gr.	oz	dt.	gr.
ij	ij	2	17	$3\frac{3}{4}$	3	1	$12\frac{7}{8}$	3	6	16			
ij	$1\frac{3}{4}$	2	15	$17\frac{1}{8}$	3	0	0	3	5	0			
ij	$1\frac{1}{2}$	2	14	$6\frac{7}{8}$	2	18	$11\frac{1}{8}$	3	3	8			
ij	$1\frac{1}{4}$	2	12	$20\frac{5}{8}$	2	16	$22\frac{1}{8}$	3	1	16			
ij	1	2	11	$10\frac{1}{4}$	2	15	$9\frac{1}{4}$	3	0	0			
ij	$\frac{3}{4}$	2	10	0	2	13	$20\frac{1}{4}$	2	18	8			
ij	$\frac{1}{2}$	2	8	$13\frac{3}{4}$	2	12	$7\frac{3}{4}$	2	16	16			
ij	$\frac{1}{4}$	2	7	$3\frac{1}{8}$	2	10	$18\frac{1}{2}$	2	15	0			
ij		2	5	$17\frac{1}{8}$	2	9	$5\frac{1}{2}$	2	13	8			
ij		2	4	$6\frac{7}{8}$	2	7	$16\frac{5}{8}$	2	11	16			
ij	$\frac{3}{4}$	2	2	$20\frac{5}{8}$	2	6	$3\frac{3}{4}$	2	10	0			
ij	$\frac{1}{2}$	2	1	$10\frac{1}{4}$	2	4	$14\frac{3}{4}$	2	8	8			
ij	$\frac{1}{4}$	2	0	0	2	3	$1\frac{7}{8}$	2	6	16			
ij		1	18	$13\frac{3}{4}$	2	1	$12\frac{7}{8}$	2	5	0			
ij	$\frac{3}{4}$	1	17	$3\frac{1}{8}$	2	0	0	2	3	8			
ij	$\frac{1}{2}$	1	15	$17\frac{1}{8}$	1	18	$11\frac{1}{8}$	2	1	16			
ij	$\frac{1}{4}$	1	14	$6\frac{7}{8}$	1	16	$22\frac{1}{8}$	2	0	0			
ij		1	12	$20\frac{5}{8}$	1	15	$9\frac{1}{4}$	1	18	8			
ij	$\frac{3}{4}$	1	11	$10\frac{1}{4}$	1	13	$20\frac{1}{4}$	1	16	16			
ij	$\frac{1}{2}$	1	10	0	1	12	$7\frac{3}{4}$	1	15	0			
ij	$\frac{1}{4}$	1	8	$13\frac{3}{4}$	1	10	$18\frac{1}{2}$	1	13	8			
ij		1	7	$3\frac{1}{8}$	1	9	$5\frac{1}{2}$	1	11	16			
ij	$\frac{3}{4}$	1	5	$17\frac{1}{8}$	1	7	$16\frac{5}{8}$	1	10	0			
ij	$\frac{1}{2}$	1	4	$6\frac{7}{8}$	1	6	$3\frac{3}{4}$	1	8	8			
ij	$\frac{1}{4}$	1	2	$20\frac{5}{8}$	1	4	$14\frac{3}{4}$	1	6	16			
ij		1	1	$10\frac{1}{4}$	1	3	$1\frac{7}{8}$	1	5	0			
ij	$\frac{3}{4}$	1	0	0	1	1	$12\frac{7}{8}$	1	3	8			
ij	$\frac{1}{2}$	0	18	$13\frac{3}{4}$	1	0	0	1	1	16			
ij	$\frac{1}{4}$	0	17	$3\frac{1}{8}$	0	18	$11\frac{1}{8}$	1	0	0			
ij		0	15	$17\frac{1}{8}$	0	16	$22\frac{1}{8}$	0	18	8			
ij	$\frac{3}{4}$	0	14	$6\frac{7}{8}$	0	15	$9\frac{1}{4}$	0	16	16			
ij	$\frac{1}{2}$	0	12	$20\frac{5}{8}$	0	13	$20\frac{1}{4}$	0	15	0			
ij	$\frac{1}{4}$	0	11	$10\frac{1}{4}$	0	12	$7\frac{3}{4}$	0	13	8			
ij		0	10	0	0	10	$18\frac{1}{2}$	0	11	16			
ij	$\frac{3}{4}$	0	8	$13\frac{3}{4}$	0	9	$5\frac{1}{2}$	0	10	0			
ij	$\frac{1}{2}$	0	7	$3\frac{1}{8}$	0	7	$16\frac{5}{8}$	0	8	8			
ij	$\frac{1}{4}$	0	5	$17\frac{1}{8}$	0	6	$3\frac{3}{4}$	0	6	16			
ij		0	4	$6\frac{7}{8}$	0	4	$14\frac{3}{4}$	0	5	0			
ij	$\frac{3}{4}$	0	2	$20\frac{5}{8}$	0	3	$1\frac{7}{8}$	0	3	8			
ij	$\frac{1}{2}$	0	1	$10\frac{1}{4}$	0	1	$12\frac{7}{8}$	0	1	16			

Wo.	ij $\frac{3}{4}$ gr			ij $\frac{1}{2}$ gr			ij $\frac{1}{4}$ gr		
ca. gr.	oz	dt.	gr.	oz	dt.	gr.	oz	dt.	gr.
ij $\frac{1}{4}$	3	12	17 $\frac{1}{2}$	4	0	0	4	8	21 $\frac{3}{8}$
ij $\frac{3}{4}$	3	10	21 $\frac{7}{8}$	3	18	0	4	6	16
ij $\frac{1}{2}$	3	9	2 $\frac{1}{4}$	3	16	0	4	4	10 $\frac{5}{8}$
ij $\frac{1}{4}$	3	7	6 $\frac{1}{2}$	3	14	0	4	2	5 $\frac{3}{8}$
ij $\frac{1}{4}$	3	5	10 $\frac{7}{8}$	3	12	0	4	0	0
ij $\frac{3}{4}$	3	3	15 $\frac{1}{4}$	3	10	0	3	17	18 $\frac{5}{8}$
ij $\frac{1}{2}$	3	1	19 $\frac{5}{8}$	3	8	0	3	15	13 $\frac{3}{8}$
ij $\frac{1}{4}$	3	0	0	3	6	0	3	13	8
ij $\frac{1}{4}$	2	18	4 $\frac{3}{8}$	3	4	0	3	11	2 $\frac{5}{8}$
ij $\frac{3}{4}$	2	16	8 $\frac{3}{4}$	3	2	0	3	8	21 $\frac{3}{8}$
ij $\frac{1}{2}$	2	14	13 $\frac{1}{8}$	3	0	0	3	6	16
ij $\frac{1}{4}$	2	12	17 $\frac{1}{2}$	2	18	0	3	4	10 $\frac{5}{8}$
ij $\frac{1}{4}$	2	10	21 $\frac{7}{8}$	2	16	0	3	2	5 $\frac{3}{8}$
ij $\frac{3}{4}$	2	9	2 $\frac{1}{4}$	2	14	0	3	0	0
ij $\frac{1}{2}$	2	7	6 $\frac{1}{2}$	2	12	0	2	17	18 $\frac{5}{8}$
ij $\frac{1}{4}$	2	5	10 $\frac{7}{8}$	2	10	0	2	15	13 $\frac{3}{8}$
ij $\frac{1}{4}$	2	3	15 $\frac{1}{4}$	2	8	0	2	13	8
ij $\frac{3}{4}$	2	1	19 $\frac{5}{8}$	2	6	0	2	11	2 $\frac{5}{8}$
ij $\frac{1}{2}$	2	0	0	2	4	0	2	8	21 $\frac{3}{8}$
ij $\frac{1}{4}$	1	18	4 $\frac{3}{8}$	2	2	0	2	6	16
ij $\frac{1}{4}$	1	16	8 $\frac{3}{4}$	2	0	0	2	4	10 $\frac{5}{8}$
ij $\frac{3}{4}$	1	14	13 $\frac{1}{8}$	1	18	0	2	2	5 $\frac{3}{8}$
ij $\frac{1}{2}$	1	12	17 $\frac{1}{2}$	1	16	0	2	0	0
ij $\frac{1}{4}$	1	10	21 $\frac{7}{8}$	1	14	0	1	17	18 $\frac{5}{8}$
ij $\frac{1}{4}$	1	9	2 $\frac{1}{4}$	1	12	0	1	15	13 $\frac{3}{8}$
ij $\frac{3}{4}$	1	7	6 $\frac{1}{2}$	1	10	0	1	13	8
ij $\frac{1}{2}$	1	5	10 $\frac{7}{8}$	1	8	0	1	11	2 $\frac{5}{8}$
ij $\frac{1}{4}$	1	3	15 $\frac{1}{4}$	1	6	0	1	8	21 $\frac{3}{8}$
ij $\frac{1}{4}$	1	1	19 $\frac{5}{8}$	1	4	0	1	6	16
ij $\frac{3}{4}$	1	0	0	1	2	0	1	4	10 $\frac{5}{8}$
ij $\frac{1}{2}$	0	18	4 $\frac{3}{8}$	1	0	0	1	2	5 $\frac{3}{8}$
ij $\frac{1}{4}$	0	16	8 $\frac{3}{4}$	0	18	0	1	0	0
ij $\frac{1}{4}$	0	14	13 $\frac{1}{8}$	0	16	0	0	17	18 $\frac{5}{8}$
ij $\frac{3}{4}$	0	12	17 $\frac{1}{2}$	0	14	0	0	15	13 $\frac{3}{8}$
ij $\frac{1}{2}$	0	10	21 $\frac{7}{8}$	0	12	0	0	13	8
ij $\frac{1}{4}$	0	9	2 $\frac{1}{4}$	0	10	0	0	11	2 $\frac{5}{8}$
ij $\frac{1}{4}$	0	7	6 $\frac{1}{2}$	0	8	0	0	8	21 $\frac{3}{8}$
ij $\frac{3}{4}$	0	5	10 $\frac{7}{8}$	0	6	0	0	6	16
ij $\frac{1}{2}$	0	3	15 $\frac{1}{4}$	0	4	0	0	4	10 $\frac{5}{8}$
ij $\frac{1}{4}$	0	1	19 $\frac{5}{8}$	0	2	0	0	2	5 $\frac{3}{8}$

Wo.	$\frac{1}{2}$ gr			$\frac{3}{4}$ gr			$1\frac{1}{2}$ gr		
ca. gr.	oz	dt	gr.	oz	dt	gr.	oz	dt	gr.
$\frac{1}{4}$	5	0	0	5	14	$6\frac{7}{8}$	6	13	8
$\frac{1}{4}$	4	17	12	5	11	$10\frac{1}{4}$	6	10	0
$\frac{1}{4}$	4	15	0	5	8	$13\frac{3}{4}$	6	6	16
$\frac{1}{4}$	4	12	12	5	5	$17\frac{1}{8}$	6	3	8
$\frac{1}{4}$	4	10	0	5	2	$20\frac{5}{8}$	6	0	0
$\frac{3}{4}$	4	7	12	5	0	0	5	16	16
$\frac{1}{2}$	4	5	0	4	17	$3\frac{3}{8}$	5	13	8
$\frac{1}{4}$	4	2	12	4	14	$6\frac{7}{8}$	5	10	0
$\frac{1}{4}$	4	0	0	4	11	$10\frac{1}{4}$	5	6	16
$\frac{3}{4}$	3	17	12	4	8	$13\frac{3}{4}$	5	3	8
$\frac{1}{2}$	3	15	0	4	5	$17\frac{1}{8}$	5	0	0
$\frac{1}{4}$	3	12	12	4	2	$20\frac{5}{8}$	4	16	16
$\frac{1}{4}$	3	10	0	4	0	0	4	13	8
$\frac{3}{4}$	3	7	12	3	17	$3\frac{5}{8}$	4	10	0
$\frac{1}{2}$	3	5	0	3	14	$6\frac{7}{8}$	4	6	16
$\frac{1}{4}$	3	2	12	3	11	$10\frac{1}{4}$	4	3	8
$\frac{1}{4}$	3	0	0	3	8	$13\frac{3}{4}$	4	0	0
$\frac{3}{4}$	2	17	12	3	5	$17\frac{1}{8}$	3	16	16
$\frac{1}{2}$	2	15	0	3	2	$20\frac{5}{8}$	3	13	8
$\frac{1}{4}$	2	12	12	3	0	0	3	10	0
$\frac{1}{4}$	2	10	0	2	17	$3\frac{3}{8}$	3	6	16
$\frac{3}{4}$	2	7	12	2	14	$6\frac{7}{8}$	3	3	8
$\frac{1}{2}$	2	5	0	2	11	$10\frac{1}{4}$	3	0	0
$\frac{1}{4}$	2	2	12	2	8	$13\frac{3}{4}$	2	16	16
$\frac{1}{4}$	2	0	0	2	5	$17\frac{1}{8}$	2	13	8
$\frac{3}{4}$	1	17	12	2	2	$20\frac{5}{8}$	2	10	0
$\frac{1}{2}$	1	15	0	2	0	0	2	6	16
$\frac{1}{4}$	1	12	12	1	17	$3\frac{3}{8}$	2	3	8
$\frac{1}{4}$	1	10	0	1	14	$6\frac{7}{8}$	2	0	0
$\frac{3}{4}$	1	7	12	1	11	$10\frac{1}{4}$	1	16	16
$\frac{1}{2}$	1	5	0	1	8	$13\frac{3}{4}$	1	13	8
$\frac{1}{4}$	1	2	12	1	5	$17\frac{1}{8}$	1	10	0
$\frac{1}{4}$	1	0	0	1	2	$20\frac{5}{8}$	1	6	16
$\frac{3}{4}$	0	17	12	1	0	0	1	3	8
$\frac{1}{2}$	0	15	0	0	17	$3\frac{3}{8}$	1	0	0
$\frac{1}{4}$	0	12	12	0	14	$6\frac{7}{8}$	0	16	16
$\frac{1}{4}$	0	10	0	0	11	$10\frac{1}{4}$	0	13	8
$\frac{3}{4}$	0	7	12	0	8	$13\frac{3}{4}$	0	10	0
$\frac{1}{2}$	0	5	0	0	5	$17\frac{1}{8}$	0	6	16
$\frac{1}{4}$	0	2	12	0	2	$20\frac{5}{8}$	0	3	8

Wo.	$1\frac{1}{4}$ gr	1 gr	$\frac{3}{4}$ gr						
ca. gr.	oz	dt.	gr.	oz	dt.	gr.	oz	dt.	gr.
i	8	0	0	10	0	0	13	6	16
i	$7\frac{3}{4}$	16	0	9	15	0	13	0	0
i	$7\frac{1}{4}$	12	0	9	10	0	12	13	8
i	$7\frac{1}{4}$	8	0	9	5	0	12	6	16
i	7	4	0	9	0	0	12	0	0
i	$7\frac{3}{4}$	0	0	8	15	0	11	13	8
i	$6\frac{1}{2}$	16	0	8	10	0	11	6	16
i	$6\frac{1}{4}$	12	0	8	5	0	11	0	0
i	6	8	0	8	0	0	10	13	8
i	$6\frac{3}{4}$	4	0	7	15	0	10	6	16
i	$6\frac{1}{2}$	0	0	7	10	0	10	0	0
i	$5\frac{1}{4}$	16	0	7	5	0	9	13	8
i	$5\frac{1}{2}$	12	0	7	0	0	9	6	16
i	$5\frac{3}{4}$	8	0	6	15	0	9	0	0
i	$5\frac{1}{2}$	4	0	6	10	0	8	13	8
i	$5\frac{1}{4}$	0	0	6	5	0	8	6	16
i	4	16	0	6	0	0	8	0	0
i	$4\frac{3}{4}$	12	0	5	15	0	7	13	8
i	$4\frac{1}{2}$	8	0	5	10	0	7	6	16
i	$4\frac{1}{4}$	4	0	5	5	0	7	0	0
i	4	0	0	5	0	0	6	13	8
i	$3\frac{3}{4}$	16	0	4	15	0	6	6	16
i	$3\frac{1}{2}$	12	0	4	10	0	6	0	0
i	$3\frac{1}{4}$	8	0	4	5	0	5	13	8
i	3	4	0	4	0	0	5	6	16
i	$3\frac{3}{4}$	0	0	3	15	0	5	0	0
i	$2\frac{1}{2}$	16	0	3	10	0	4	13	8
i	$2\frac{1}{4}$	12	0	3	5	0	4	6	16
i	2	8	0	3	0	0	4	0	0
i	$2\frac{3}{4}$	4	0	2	15	0	3	13	8
i	$2\frac{1}{2}$	0	0	2	10	0	3	6	16
i	$1\frac{3}{4}$	16	0	2	5	0	3	0	0
i	$1\frac{1}{2}$	12	0	2	0	0	2	13	8
i	$1\frac{1}{4}$	8	0	1	15	0	2	6	16
i	$1\frac{1}{2}$	4	0	1	10	0	2	0	0
i	$1\frac{1}{4}$	0	0	1	5	0	1	13	8
i	0	16	0	1	0	0	1	6	16
i	$0\frac{3}{4}$	12	0	0	15	0	1	0	0
i	$0\frac{1}{2}$	8	0	0	10	0	0	13	8
i	0	4	0	0	5	0	0	6	16

Wo.		$\frac{1}{2}$ gr		$\frac{1}{4}$ gr			
ca.	gr.	oz	dt.	gr.	oz	dt.	gr
11	11	20	0	0	0	0	0
11	11 $\frac{3}{4}$	19	10	0	39	0	0
11	11 $\frac{1}{2}$	19	0	0	38	0	0
11	11 $\frac{1}{4}$	18	10	0	37	0	0
11	11	18	0	0	36	0	0
11	11 $\frac{3}{4}$	17	10	0	35	0	0
11	11 $\frac{1}{2}$	17	0	0	34	0	0
11	11 $\frac{1}{4}$	16	10	0	33	0	0
11	11	16	0	0	32	0	0
11	11 $\frac{3}{4}$	15	10	0	31	0	0
11	11 $\frac{1}{2}$	15	0	0	30	0	0
11	11 $\frac{1}{4}$	14	10	0	29	0	0
11	11	14	0	0	28	0	0
11	11 $\frac{3}{4}$	13	10	0	27	0	0
11	11 $\frac{1}{2}$	13	0	0	26	0	0
11	11 $\frac{1}{4}$	12	10	0	25	0	0
11	11	12	0	0	24	0	0
11	11 $\frac{3}{4}$	11	10	0	23	0	0
11	11 $\frac{1}{2}$	11	0	0	22	0	0
11	11 $\frac{1}{4}$	10	10	0	21	0	0
11	11	10	0	0	20	0	0
11	11 $\frac{3}{4}$	9	10	0	19	0	0
11	11 $\frac{1}{2}$	9	0	0	18	0	0
11	11 $\frac{1}{4}$	8	10	0	17	0	0
11	11	8	0	0	16	0	0
11	11 $\frac{3}{4}$	7	10	0	15	0	0
11	11 $\frac{1}{2}$	7	0	0	14	0	0
11	11 $\frac{1}{4}$	6	10	0	13	0	0
11	11	6	0	0	12	0	0
11	11 $\frac{3}{4}$	5	10	0	11	0	0
11	11 $\frac{1}{2}$	5	0	0	10	0	0
11	11 $\frac{1}{4}$	4	10	0	9	0	0
11	11	4	0	0	8	0	0
11	11 $\frac{3}{4}$	3	10	0	7	0	0
11	11 $\frac{1}{2}$	3	0	0	6	0	0
11	11 $\frac{1}{4}$	2	10	0	5	0	0
11	11	2	0	0	4	0	0
11	11 $\frac{3}{4}$	1	10	0	3	0	0
11	11 $\frac{1}{2}$	1	0	0	2	0	0
11	11 $\frac{1}{4}$	0	10	0	1	0	0

Use of the GOLD TABLES.

The reports of gold better than standard are at the top of the page, and those which are worse from 2 car. 2 gr. to $\frac{1}{4}$ of a carat grain on the side, and where they meet is seen how much of the better is to be added to one ounce of the worse to make it standard.

As if the gold you are to use in standarding is 1. car. 11. ss gr. Br. and that to be standardised is 11. car. worse; the table shews that 1 oz. 10 dwt. $18\frac{1}{2}$ gr. is the quantity required, if it should be 1. car. 11. gr. Wo. it will require 18 dwt. $11\frac{1}{4}$ gr. and if 11. car. 11. gr. Wo. then the above quantities of 1 oz. 10 dwt. $18\frac{1}{2}$ gr. added to 18 dwt. $11\frac{1}{4}$ gr. that is 2 oz. 9 dwt. $5\frac{1}{4}$ gr. will be the quantity which must be added of 1. car. 11. ss gr. Br. to one ounce of the worse to make it standard.

And if several different ingots are melted together all of them worse, as suppose one Wo. 1. car. 11. ss gr. another Wo. 11. car. $\frac{1}{4}$ gr. and a third Wo. 11. car. 11. gr. the table will shew what quantity of any fineness specified that is better; as suppose 11. car. 11. $\frac{3}{4}$ gr. must be added to one ounce of the mixture to make it standard; thus 1. car. 11. ss gr. requires 19 dwt. $8\frac{1}{2}$ gr. that of 11. car. $\frac{1}{4}$ gr. requires 1 oz. 1 dwt. 7 gr. and that of 11. car. 11. gr. requires 1 oz. 5 dwt. $19\frac{3}{4}$ gr. which being added together makes 3 oz. 6 dwt. $10\frac{7}{8}$ gr. which must be added of 1. car. 11. $\frac{3}{4}$ car. to make it standard.

If

If silver or gold is required to be standardised which is more than 1. 03. Wo. in the silver, or 11. car. 11. gr. in the gold; as suppose 2, 3, 4, 5, 6, &c. oz. it is but multiplying the quantity against one ounce, by the number of oz. and you have the answer, and the same for 3, 4, 6, 8, 9, &c. carats in the gold.

We shall now give the rule mentioned, p. 126. to find what part of any ingot that is worse, is to be refined to any determinate fineness better, so that the remainder may be standard.

If an ingot worse than standard is required to be made such by refining, the first silver tables do shew how much must be fined off of each oz. and in proportion from any ingot according to its weight.

But if instead of refining the whole ingot till it be standard, a part of it be taken and made better than standard, in this case a greater or a lesser part of it is requisite, according to the fineness it is required to be brought to, and what this quantity must be according to the desired fineness, is found by the following

R U L E.

Multiply the weight of the ingot by its report, and this product by the total number of fine parts it is to be of when refined, divide this last product by the sum of the two reports, multiplied

plied into the fine parts in standard, and the quotient is the answer.

Example . How much must be taken and refined to $\overset{\text{No}}{\text{Zviii}}$ Br. from a silver ingot weighing 486 oz. 10 dwt. $\overset{\text{No}}{\text{Zviii}}$ Wo. $\overset{\text{No}}{\text{Zviii}}$ that the remainder may be standard. *

dwt.	dwt.	oz. dwt.
222	222	486 10
14	32 $\frac{1}{2}$	20
236	444	9730
	666	18 $\frac{1}{2}$ report of the ingot
dwt. 111		
18 $\frac{1}{2}$		175140
14	7215	4865
32 $\frac{1}{2}$ sum of the reports]	180005	[reduced to
	236	total fine parts to be
	1080030	
	540015	
	360010	
		(210
	7215)42481180	588 7
	64061	294 oz. 7 dwt. 21 $\frac{1}{2}$ gr.
	63418	
	56980	
	6475	

The quantity to be fined is 294 oz. 7 dwt. 21 $\frac{1}{2}$ gr.

* See Reynold's tables, page 54, 55.

An ingot of gold weighing 87 oz. 14 dwt.
 Wo. ^{car}ij what quantity of it must be taken from
 it and fined to ^{car}gr Br. that the remainder may
 be standard.

car. gr.	cr. gr.	oz. dwt.
88 in stan.	88	87 14
7 Br.	15	20
<u>95</u>	<u>1320</u>	<u>1754</u>

8 report of the ingot

7 Br.	14032
8 Wo.	95 total fine parts

15 sum of 1320 + 333040 (100/9²/₃)
 the reports 50 oz. 9 dwt. 2 gr.
 (to be fined)

When silver better than standard is to be stan-
 dardized with fine copper, there must be 1 grain
 added to each ounce of silver for every $\frac{1}{2}$ dwt. it is
 better, 2 grains for each dwt. better, and so on as
 in the following table: —

Br.	dt. gr.	Br.	dt. gr.	Br.	dt. gr.
lviii	1 12	lviii	1 0	v	0 12
lvii	1 11	lvii	0 23	iv	0 11
lvii	1 10	lvii	0 22	iv	0 10
lvii	1 9	lvii	0 21	iii	0 9
lvii	1 8	lvii	0 20	iii	0 8
lv	1 7	lv	0 19	iii	0 7
lv	1 6	lv	0 18	ii	0 6
lviii	1 5	lviii	0 17	ii	0 5
lviii	1 4	lviii	0 16	i	0 4
lviii	1 3	lviii	0 15	j	0 3
lviii	1 2	lviii	0 14	j	0 2
lviii	1 1	lviii	0 13	j	0 1

In like manner when gold that is better is to be standardised with rose copper, there must be $1\frac{1}{4}$ grain added for each quarter carat grain, 5 gr. for each carat grain, and 20 gr. for each carat that the gold is better, and so on in proportion as in the table.*

ca. gr.	dt. gr.	ca. gr.	dt. gr.	gr.	dt. gr.
$11\frac{1}{2}$	1 16	$11\frac{1}{4}$	$1\frac{1}{4}$	1 2 $\frac{1}{4}$	$11\frac{1}{2}$
$11\frac{3}{4}$	1 14 $\frac{3}{4}$	1 1	1	1 1	$11\frac{1}{4}$
$11\frac{1}{2}$	1 13 $\frac{1}{2}$	$11\frac{3}{4}$	$\frac{3}{4}$	0 23 $\frac{3}{4}$	10
$11\frac{1}{4}$	1 12 $\frac{1}{4}$	$11\frac{1}{2}$	$\frac{1}{2}$	0 22 $\frac{1}{2}$	$8\frac{3}{4}$
11	1 11	$11\frac{1}{4}$	$\frac{1}{4}$	0 21 $\frac{1}{4}$	$7\frac{1}{2}$
$10\frac{3}{4}$	1 9 $\frac{3}{4}$	11	1	0 20	$6\frac{1}{4}$
$10\frac{1}{2}$	1 8 $\frac{1}{2}$	$10\frac{3}{4}$	$\frac{3}{4}$	0 18 $\frac{3}{4}$	5
$10\frac{1}{4}$	1 7 $\frac{1}{4}$	$10\frac{1}{2}$	$\frac{1}{2}$	0 17 $\frac{1}{2}$	$3\frac{3}{4}$
10	1 6	$10\frac{1}{4}$	$\frac{1}{4}$	0 16 $\frac{1}{4}$	$2\frac{1}{2}$
$9\frac{3}{4}$	1 4 $\frac{3}{4}$	$10\frac{1}{2}$	$\frac{1}{2}$	0 15	$1\frac{1}{4}$
$9\frac{1}{2}$	1 3 $\frac{1}{2}$	$10\frac{1}{4}$	$\frac{1}{4}$	0 13 $\frac{3}{4}$	

To make this work more useful, we have added the figures of several foreign gold and silver coins with their finenesses; that is, how much Br. or Wo. than standard, from whence their value per oz. is soon obtained, by the tables in p. 49, 50. according to the price standard bears at any particular time.

As also a small table of the different methods of expressing the fineness of silver abroad, wherein it must be observed that the Denier is divided into 24 grains, and is used in Holland, France, Spain, Portugal and Italy; the Lodig into 18 grains used in Germany, the Carat is in use only at Venice, the Matt on the coast of coromandel, and the Touch in china.

* Experience is the best guide what little difference will be occasioned by waste in the melting.

A TABLE of the agreement of the expressions used abroad for fineness, with those in use here in England.

oz.	den. gr.	lod. gr.	carats	mat.	touch
12	12 0	16 0	1152	10	100
stan.	11 $2\frac{2}{3}$	~~16~~ $16\frac{4}{5}$	$1148\frac{1}{5}$	$9\frac{1}{4}$	$92\frac{1}{2}$
11	11 0	14 12	1506	$9\frac{1}{8}$	$91\frac{2}{3}$
10	10 0	13 6	960	$8\frac{1}{4}$	$83\frac{1}{3}$
9	9 0	12 0	864	$7\frac{1}{2}$	75
8	8 0	10 12	768	$6\frac{2}{3}$	$66\frac{2}{3}$
7	7 0	9 6	672	$5\frac{5}{6}$	$58\frac{1}{3}$
6	6 0	8 0	576	5	50
5	5 0	6 12	480	$4\frac{1}{6}$	$41\frac{2}{3}$
4	4 0	5 6	384	$3\frac{1}{3}$	$33\frac{1}{3}$
3	3 0	4 0	288	$2\frac{1}{2}$	25
2	2 0	2 12	192	$1\frac{2}{3}$	$16\frac{2}{3}$
1	1 0	1 6	96	$0\frac{5}{6}$	$8\frac{1}{3}$
19dt.	0 $22\frac{4}{5}$	1 $4\frac{4}{5}$	$91\frac{1}{5}$	$0\frac{1}{2}\frac{9}{4}$	$7\frac{1}{1}\frac{1}{2}$
18	0 $21\frac{3}{5}$	1 $3\frac{3}{5}$	$86\frac{2}{5}$	$0\frac{3}{4}$	$7\frac{1}{2}$
17	0 $20\frac{2}{5}$	1 $2\frac{2}{5}$	$81\frac{3}{5}$	$0\frac{1}{2}\frac{7}{4}$	$7\frac{1}{1}\frac{1}{2}$
16	0 $19\frac{1}{5}$	1 $1\frac{1}{5}$	$76\frac{4}{5}$	$0\frac{2}{3}$	$6\frac{2}{3}$
15	0 18	1 0	72	$0\frac{5}{8}$	$6\frac{1}{4}$
14	0 $16\frac{4}{5}$	0 $16\frac{4}{5}$	$67\frac{1}{5}$	$0\frac{7}{12}$	$5\frac{5}{6}$
13	0 $15\frac{3}{5}$	0 $15\frac{2}{5}$	$62\frac{2}{5}$	$0\frac{1}{2}\frac{3}{4}$	$5\frac{5}{1}\frac{1}{2}$
12	0 $14\frac{2}{5}$	0 $14\frac{2}{5}$	$57\frac{3}{5}$	$0\frac{1}{2}$	5
11	0 $13\frac{1}{5}$	0 $13\frac{1}{5}$	$52\frac{4}{5}$	$0\frac{1}{2}\frac{1}{4}$	$4\frac{7}{1}\frac{1}{2}$
10	0 12	0 12	48	$0\frac{5}{12}$	$4\frac{1}{6}$
9	0 $10\frac{4}{5}$	0 $10\frac{4}{5}$	$43\frac{1}{5}$	$0\frac{3}{8}$	$3\frac{3}{4}$
8	0 $9\frac{3}{5}$	0 $9\frac{3}{5}$	$38\frac{2}{5}$	$0\frac{1}{3}$	$3\frac{1}{3}$
7	0 $8\frac{2}{5}$	0 $8\frac{2}{5}$	$34\frac{3}{5}$	$0\frac{7}{24}$	$2\frac{1}{1}\frac{1}{4}$
6	0 $7\frac{1}{5}$	0 $7\frac{1}{5}$	$28\frac{4}{5}$	$0\frac{1}{4}$	$2\frac{1}{2}$
5	0 6	0 6	24	$0\frac{5}{24}$	$2\frac{1}{1}\frac{1}{2}$
4	0 $4\frac{4}{5}$	0 $4\frac{4}{5}$	$19\frac{1}{5}$	$0\frac{1}{6}$	$1\frac{2}{3}$
3	0 $3\frac{3}{5}$	0 $3\frac{3}{5}$	$14\frac{2}{5}$	$0\frac{1}{8}$	$1\frac{1}{4}$
2	0 $2\frac{2}{5}$	0 $2\frac{2}{5}$	$9\frac{3}{5}$	$0\frac{1}{12}$	$0\frac{5}{6}$
1	0 $1\frac{1}{5}$	0 $1\frac{1}{5}$	$4\frac{4}{5}$	$0\frac{1}{2}\frac{1}{4}$	$0\frac{5}{1}\frac{1}{2}$
$\frac{1}{2}$	0 $0\frac{3}{5}$	0 $0\frac{3}{5}$	$2\frac{2}{5}$	$0\frac{1}{4}\frac{1}{8}$	$0\frac{5}{2}\frac{1}{4}$



Philip Dollar.



W^o 14



Grosse Dollar.



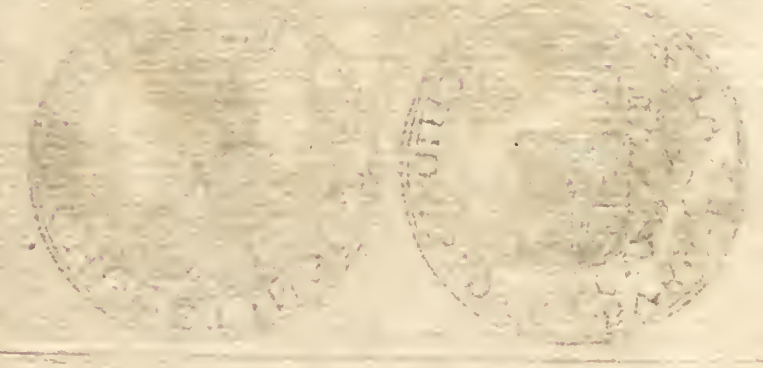
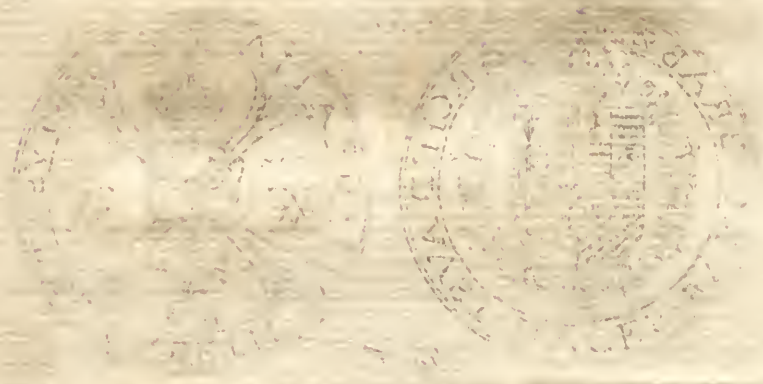
W^o 2



Flemish Ducaton.



Br 14





Dutch Rix Dollar

No



dwt
2



No

French Ecu



dwt
ob



No

German Rix Dollar



dwt
Tij



Mexico Piece of 8.



Sta.

Mexico Piece of 8.

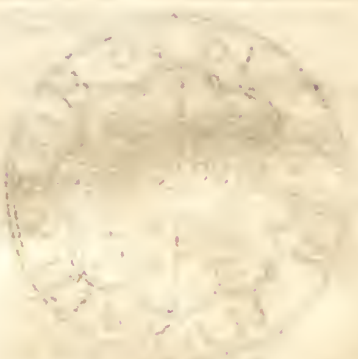


Br dwt
1

Seville Piece of 8.



Sta.



French Quart d'Ecu



Scotch Mark



Portuguese Teston





Old Flemish Noble

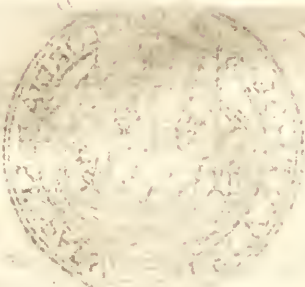
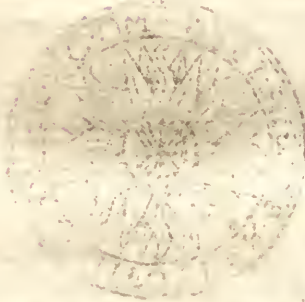
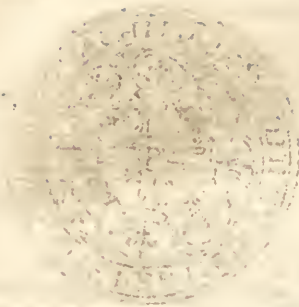


Dutch Rose Noble



Dutch Ryder





Flemish Sovereign.



W^o

9¹/₄

Albertine.

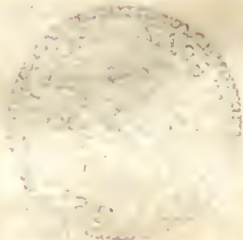
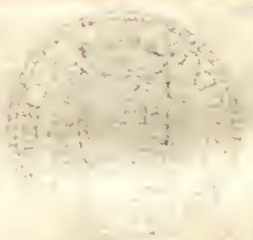
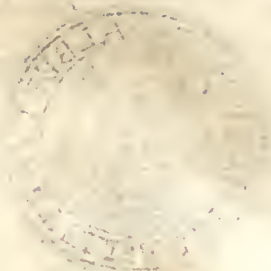


*W^o 2⁹/₄
the 2⁹/₄ W^o 14*

Flemish Sovereign.



W^o 4⁹/₄



Spanish Ducat.



car gr.
Br 1 4

Spanish double Ducat.



car gr.
Br 1 4

Spanish Escudo.



No. gr.
1/2

Spanish Doubloon.



No. 2 gr.





Sta.

S.^t Vincent Portuguese.



Sta.



No.

1/2 gr.



No. 1/2 gr.







Metz Guilder

No



gr
1/4



Milan Pistole

No

gr
1/4



6L. Scotch

No

gr
1/4



French Louis d'or

No

gr
1/4

